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Original Articles.

AN IMPROVED METHOD OF TREATING HIGH-SEATED CANCERS OF THE RECTUM.*

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Many will agree with me, I fancy, in considering the Kraske operation a very unsatisfactory one for the removal of the high-seated cancers of the rectum. In addition to the depth of the wound, the more or less jagged invasion of the peritoneal cavity, the possible difficulty of satisfactorily drawing down the upper portion of the bowel, and, finally, the trouble that is involved in the proper suturing of the preserved anal portion to the proximal end, all render it, with its annoying hemorrhage, an operation that is often, in my judgment and experience, troublesome and devoid of surgical neatness and precision. It is true that within four or five inches from the anus the affected part of the bowel can be easily reached and removed with the creation, if the anus is involved, of a fairly satisfactory sacral artificial anus. But if the anus, and say two inches of the adjoining rectum, can be saved, a point which is of great importance to the subsequent comfort of the patient, and to do which the bowel above must be liberated and brought down, then the foregoing objections to the surgical procedure in vogue must be taken strongly into consideration. They apply as well to the methods of approach from behind, as in Kraske's method, or from the front (by the vagina), as Murphy has recently advised. The latter I have not essayed, but an experience of over 20 cases of Kraske's resection, 9 of which were followed by an attempt at union of the divided rectal ends, has markedly impressed me with the desirability of attacking high-lying cancer of the rectum by a somewhat different method. The abdominal route has been tried by others but last year, i. e., in January, 1900, I ventured to practice such an extirpation after the plan that Maunsell[1] (then of New Zealand) had advised. His suggestion, as you may remember, was, to open the abdomen above the pubis, separate the peritoneum from the bowel largely and then to pass a loop of tape by a long mattress needle from the opened pelvis through the rectum and out the previously enlarged anus. By this loop he proposed to pull down the neoplasm loosened by peritoneal divisions and by some additional blunt dissection with the finger, so that it would appear at the anus, everting the lower part of the rectum as it protruded. If the protrusion was accomplished, and to do this it might be necessary to acquire more room by freely dividing the anus back to the coccyx, then the tumor was removed and the two ends of the bowel now, so to speak, out in the cold world, were easily connected by sutures and then replaced. The final step was the suturing of the divided peritoneum. This was a finely conceived operation, but it did not work with me in my trial of it, the hitch being that the tumor would not pass through the divided anus and that the forcible traction enlarged the tape openings into the bowel so much that escape of its contents was possible. I therefore changed the plan of procedure in this way: My fingers had freely detached the divided peritoneum so that the bowel and the entire contents of the sacral curve were liberated behind nearly to the tip of the coccyx and in front to the edge of the prostate; this gave me room to tie around the bowel, some three inches from the anus, a couple of iodoform tapes, about an inch apart. The intestine was here cut through and, being free, was readily raised out of the abdominal wound and held aside by an assistant. The lower end of the rectum was then seized by a forceps in the hands of another assistant, who drew it down and out of the anus in an everted condition. Untying the tape that closed this everted bowel, its lumen was opened so that a longer forceps could be carried through it into the pelvis, when the end of the upper bowel was brought down within its clasp and by it the latter was drawn through the lower bowel out into the world. A couple of needles passed through the invaginated ends of the bowel—near their margins—allowed easy union by sutures of their edges (with the knots inside the bowel) and replacement of the same followed. After the peritoneum had been sewn together and to the bowel so that the pelvis and general abdominal cavity had been separated one from the other by a peritoneal shelf, I deemed it best to provide drainage from the peri-intestinal space below by a tube introduced from just in front of the coccyx. These details will be better understood on inspection of Figs. 1 to 4.

The outcome made a delightfully satisfactory operation, and its success justified its repetition in two other recent cases, reports of which are here appended. Two of these patients recovered and one died, not from any peritonitis, but from a persistent diarrhea without temperature elevation. In the two that recovered inspection shows no recurrence eighteen months and nine months, respectively, after the operation. It was necessary in each case, some three to six weeks afterward, to use a No. 7 or 8 Wales rectal bougie, for there was somewhat more stenosis than is seen in the reunion of peritoneally covered bowel ends. This, however, was to be expected in a measure. The patients are well and in good health, and have one or two movements daily with ease. Some points are worth touching on a little more fully.

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee of the Section: W. J. Mayo, H. O. Walker, and A. J. Ochsner.

1. Lancet, Aug. 27, 1892.

1. Concerning the Division of the Peritoneum.—By drawing the neoplasm backwards the folds of the peritoneum stretching from the bladder in the male, and from the uterus in the female, are rendered prominent and a small cut is made in each, and through these openings a scissors curved on its side or the common bandage scissors can be introduced just under the peritoneum and this divided up to the bowel, across, and behind it. A transverse cut across the front of the bowel joining the two knife punctures frees the bowel entirely and by pushing downwards anteriorly the prostate is soon reached. Before, however, peeling off the sacral tissues I have found it advantageous to search for and to tie the superior hemorrhoidal artery, as this renders the operative field nearly bloodless. This exposure of the sacral curve can be carried much further upwards should necessity arise, in a hunt for enlarged glands. If the lower blade of the scissors is kept persistently against the under surface of the peritoneum no risk of damage to vessels, nerves, etc., will be experienced.

2. As to Surgical Cleanliness.—The risk of this and similar procedures is, of course, the possible abdominal

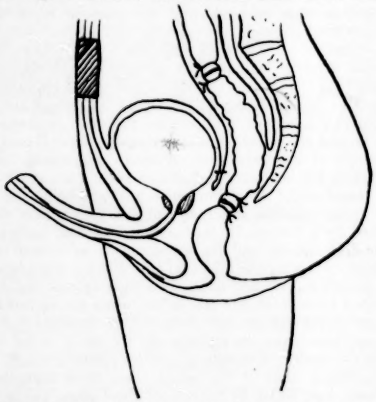

Fig. 1.—Tying off the tumor through an abdominal incision, after separating peritoneum from sacrum and bladder.

sepsis from the divided ends of the bowel. I have not only exercised particular care in this respect, but have, as soon as the lower division has been accomplished, touched the divided exposed mucous membranes with pure carbolic acid, which is promptly swabbed off with alcohol, and similarly treated the upper divided gut as it rests outside the abdomen. Prior to putting in the final sutures and while the bowel ends protrude from the anus this cauterized portion is cut off also. After the eversion of the lower bowel the whole pelvis is repeatedly washed with sterile salt solution, the parts being under good exposure by the retraction of the intestines above by pads or by a broad wire-handled retractor covered by gauzes, three inches by eight inches, which admirably keeps them back like a diaphragm. I prefer this to the diaphragm that Maunsell originally proposed (loc cit).

3. The Anus and the Drainage.—In my first case, to enable me to extract the neoplasm by traction, I freely divided the anus backwards with a somewhat prolonged impairment of power. In the other two cases only stretching in the usual way was resorted to. In all the cases a short drainage tube was carried up to the site of the line of suture and inside the bowel was placed a small rubber tube covered with iodoform gauze.

The contrast in this operation of Maunsell, which I have only slightly modified, with the usual Kraske operation, is most marked. Its signal precision, its freedom from hemorrhage and its thorough exclusion of the area of trauma from the peritoneal cavity lead me to hope that it may come into more general use, as it conduces to the desired end in such diseases, which is, more thoroughness in their extirpation.

It is especially important to have a reliable assistant in this procedure. He should evert the lower bowel, pull down the upper, conduct the suturing, replacement and drainage. The surgeon in charge had better restrict himself to the interior abdominal work and thus be able to maintain the required asepsis. It is true that the use of rubber gloves, easily disinfected as they are, or so readily changed, will often do away with this need.

CASE 1.—Mr. C. H., aged 64. Referred to me by Dr. Knickerbocker in January, 1900, with the history of pain in the lower bowel for over a year, with constipation increasing in character with occasional attacks of obstruction. Loss of flesh moderate, not more than ten pounds. Some loss of strength. No anemia.

By examination a carcinomatous mass can be felt about four inches from the anus. Into this the tip of the forefinger can be passed sufficiently to enable one to prove that the mass above can be moved quite freely. The upper end of the neo-

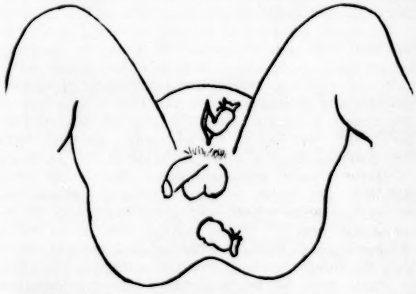

Fig. 2.—Lower end of rectum everted through the anus and the upper end of bowel drawn out of the abdominal cavity.

plasm can not be reached. Its nature was confirmed by a microscopic examination.

On Jan. 30, 1900, rectal extirpation by Maunsell's method by abdominal section was attempted with the assistance of Drs. Frank Hartley, Foote and Taylor. Nitrous oxid gas with oxygen was administered by Dr. Goldan.

The bowels had been freely moved on the day previously, as I do not like fecal flooding at the time of operation. After the abdomen was opened a transverse septum 3 by 8 inches of gauze stretched on stout copper wire with a handle was used to retain the small intestines above the pelvis. It answered its purpose very well. The peritoneum was cut through on each side of the rectum back to the sacrum and also across just behind the bladder. The contents of the sacral curve were peeled off after tying the superior hemorrhoidal artery. Several small glands were found here. None could be found above the upper limit of the peritoneal division. An attempt was made by a loop of tape drawn through the upper part of the tumor out through the anus to pull down the growth, but this failed though the anus had been enlarged and the rectum itself previously dilated by Dr. Hartley by means of specula and fingers. The tugging not only failed, but tore the gut badly and was abandoned as impracticable. Therefore, a tape of iodoform gauze was applied around the rectum below the

tumor and a clamp was fastened just above this. On dividing the intervening intestine the tumor was able to be lifted outside the abdominal cavity after a little further liberation of the peritoneum covering the mesentery. The tumor which was four inches long, that is to say, its upper limit was 8 to 9 inches from the anus, was cut off and the tied end of the bowel remaining was sterilized by pure carbolic acid, as was also the anal end of the rectum left in the pelvis. Dr. Hartley now, with a forceps, seized the lower portion of the bowel and everting it caused it to protrude through the anus. Another introduction of the forceps through the everted gut caught the end of the upper bowel and this in turn was drawn through the everted anal portion. Both ends of the rectum were held *in situ* for a time by two long straight needles passed across their wall at right angles near the suture line, which was freshened by cutting off the cauterized edge. Between 20 and 30 interrupted fine chromicized catgut sutures were used to close the circumference of the bowel. The united portion was then drawn up into position by slight traction from Dr. Weir. After this the divided peritoneal edges were carefully sewn together by interrupted sutures, first freely irrigating the raw pelvis, which was drained from below by a drain inserted thither through the wound reaching to the coccyx. The operation lasted over three hours by reason of the time spent in endeavoring to pull down and drag out the tumor in accordance with Maunsell's directions. The patient had no shock, but was found to have on coming out of his anesthesia a complete muscular and sensory paralysis of his entire left

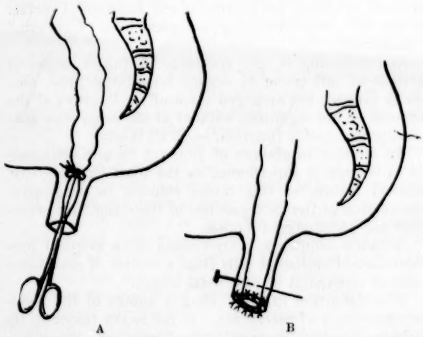

Fig. 3.—A. The upper bowel drawn out through the everted lower end of rectum. B. The ends of the two portions of the rectum sewn together.

arm. During the anesthesia both arms had been fastened above his head, which latter, moreover, for ease of working the somewhat cumbrous apparatus of the mixed anesthesia, had been kept strongly to the right side, thus all the more stretching the brachial plexus. It may be said that it required some six months for him to recover from this, my first experience in position paralysis. His recovery from the operation was satisfactory and prompt. He was up and about in three weeks, a slight mural abscess delaying a little his progress. He noticed at the end of six weeks some little trouble in defecation, and I found on examination that a cicatricial contraction linear in character had occurred which yielded to a No. 3 to No. 8 Wales bougie in the course of a month. Since then he has been in good local and general condition.

CASE 2.—Mrs. A. H. T., admitted to Roosevelt Hospital, Oct. 17, 1900, with this history: She began six months ago to have blood and mucus preceding stools, which continued up to time of admission without any considerable increase. Six weeks ago pain was felt deep in the pelvis, which was not increased by defecation; aching in character but worse at times. No diminution in size of fecal mass. Bowels regular. Slight loss of flesh.

Examination showed general condition good. Rectal: 3½ inches from anus an ulcerated mass 1½ inches in width attached to anterior and left side in a sessile manner; finger can not reach above it; slightly tender; not markedly hard; no constriction. No glands felt. No bleeding from examination. Rectum slightly movable. Microscopic confirmation of carcinoma.

Operation.—Oct. 27, 1900, anesthetic, gas and ether. Trendelenburg position. Celiotomy in median line; intestines retracted upward by 3 by 8 inch gauze-covered retractor. Tumor found movable and running upwards and involving the upper part of rectum and lower part of sigmoid. Peritoneum divided on each side of diseased gut; 4½ inches excised between ligatures. Distal stump invaginated through rectum and anus. Ligature removed; proximal stump then drawn through everted distal portion; a circular enterorrhaphy done outside rectum. Gut retracted into abdominal cavity again; peritoneum sutured over it. Abdominal wall closed. Drainage posterior to anus. Operation almost bloodless. Glands in hollow of sacrum not much involved.

Course.—Uneventful recovery; bowels moved ninth day; all drains removed and wounds healed by fourteenth day; slight discharge of muco-pus from rectum for two weeks more.

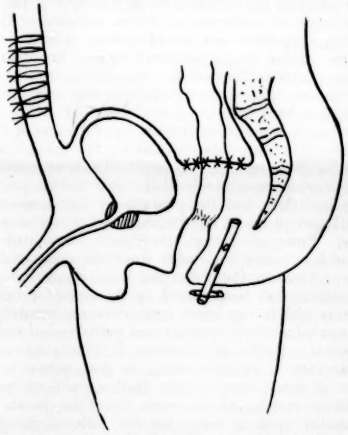

Fig. 4.—The united bowel replaced with posterior drainage, and the divided peritoneum so sewn together as to shut off the general peritoneal cavity from the pelvis.

Developed mild pneumonia then, transferred to medical side from which discharged improved, Dec. 20, 1900. Three months after operation a smooth stricture felt of some thickness, admitting No. 6 and 7 Wales bougie. Movements twice a day. In good general health when seen in May, 1901.

CASE 3.—Man, 54, sent to me by Dr. Forman, of Freehold, N. J., with a history of rectal trouble going back many months. from about 2½ inches from the anus upwards so that deep above pubis its impulse from below could be felt. Was only in fair condition. The operation was done in the manner previously described, but it varied in two ways. There was much more than the usual oozing of blood, and after opening the peritoneum and separating the wall it was found that the infiltration of the carcinoma extended along the right lateral wall toward the anus so that there was at this point not more than 1 to 1½ inches of sound intestinal wall. This in its eversion demanded its truncation and also additional loosening of the upper bowel from its mesentery. The other steps were as usual. He did well for twenty-four hours and then began to have a diarrhea without pain or vomiting or distension, which was not controllable, and which brought about a fatal issue at the end of the fourth or fifth day.

THE PRESENT STATUS OF THE CARCINOMA QUESTION.*

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There is no subject in pathology and surgery that has been studied with more care and diligence during the last two decades than the carcinoma question. The most intense interest in this subject was awakened with the origin and development of the modern science of bacteriology. As soon as it became known that all inflammatory processes are caused by specific pathogenic micro-organisms, it was natural that by reasoning from analogy the conclusion was reached that carcinoma is a parasitic disease. There are so many similarities between chronic infective diseases, notably tuberculosis and carcinoma, that we can readily appreciate the motives that led to the investigations in all parts of the civilized world concerning the microbic origin of carcinoma. Various methods of tissue staining, cultivation and inoculation experiments have all been utilized by thousands of earnest investigators in their efforts to discover the essential microbic cause of carcinoma. Numerous intracellular and extracellular bodies have been discovered and described as the specific parasitic cause of carcinoma, but for none of them has the claim been substantiated by the crucial tests. Searching criticisms from different reliable sources have shown almost conclusively that these bodies are not living organisms, but the products of degeneration of the cell protoplasm of cell inclusions of a non-parasitic nature. From an etiologic standpoint, very little has been added to our knowledge since the epoch-making labors of Virchow, Cohnheim and Waldeyer.

Something has been gained by the study of tumors in plants and in the lower animals in contributing to our knowledge of the etiology and pathology of tumors in general. Pathologic processes in plants are much simpler than in animals, owing to the absence in the former of many complicating factors, such as nerves and blood vessels; at the same time, the plants are constructed upon a much simpler embryologic plan. Both animal and vegetable cells have in common the nitrogenous carbon compound called "protoplasm." The idea of carcinoma being a local manifestation of a general dyscrasia has been abandoned years ago. Virchow established by his immortal researches that great pathologic law, *omnis cellula e cellula*, which applies with special force to the origin and growth of carcinoma, as well as other tumors, and the histogenesis of all inflammatory swellings. Students of this subject are now all agreed upon the fact, well established by the most accurate and painstaking microscopic investigations, that carcinoma, in all its histologic and clinical varieties and in the different anatomical localities where it originates, is a local disease, and that generalization only takes place by metastasis from the primary tumor.

Pathology has been materially advanced by careful microscopic work concerning the origin, growth, multiplication and life-history of the carcinoma cell and its manner of local and general dissemination. The atypical irregular mitotic figures which are seen in the segmenting carcinoma cell are in strong contrast with the regular symmetric mitosis observed in indirect cell division in normal tissue. The metastatic processes have been traced step by step through the lymphatic channels and the systemic circulation, and it has been demonstrated beyond all doubt that the secondary tumors are the direct offspring of migrating carcinoma cells from the primary tumor, and that the pre-existing tissues take no part in the tumor formation, primary or metastatic.

With these few exceptions, the enormous energies expended in determining the true nature of carcinoma have yielded very little of scientific or practical value.

From these introductory remarks we can formulate the first proposition.

PROPOSITION 1: The most notable contributions to the present status of the carcinoma question are to be found by the investigations which have thrown new light on the origin, growth, segmentation and manner of local and general dissemination of the carcinoma cell.

Definition.—The definitions of carcinoma must necessarily vary in accordance with the idea entertained by the author or speaker regarding the nature of the disease. That no unanimity has been reached in defining carcinoma becomes very evident in the perusal of the most recent literature on the subject of tumors.

"A tumor is a new formation of tissue possessing atypical structure, not exercising any function of service to the body, and presenting no typical limit of growth."—Ziegler.

The following is very similar: "A tumor proper is a mass of cell tissue or organs resembling those normally present, but arranged atypically. It grows at the expense of the organism, without at the same time subserving any useful function."—C. P. White.

An allusion to absence of function in any definition of carcinoma is superfluous, as the most characteristic clinical feature of this tumor consists in progressive destruction of tissues regardless of their anatomic structure and physiologic function.

Author's definition: "Carcinoma is an atypical proliferation of epithelial cells from a matrix of embryonic cells of congenital or post-natal origin."

This definition includes what is known of the histogenetic origin of carcinoma. It refers the tumor to its primary location in mesoblastic tissue, and the origin of its cellular elements to a matrix of embryonic epithelial cells. In 1846 Piguè explained the occurrence of congenital tumors by inclusion of embryonic remains, a process he termed *diplogenesis*. Remak, in 1851, distinguished the three germinal layers and believed the epithelial cells were the histologic origin of carcinoma. In 1855 Cruveilhier described an enchondroma of the hand, and traced its origin to an imperfect ossification of cartilage at the site of tumor formation. In 1860 Heschl gave a description of the origin of dermoid tumors in the orbital region, neck and perineum, which he claimed were the products of inclusions derived from the epiblast. The theory of embryonic tumor germs was placed upon a scientific basis by Durante in 1874, and a year later by Cohnheim, a theory so warmly championed by Waldeyer and other contemporaries. The heterotopic location of the epithelial cells distinguishes carcinoma from all the benign epithelial tumors. Atypical proliferation of epithelial cells means their growth and multiplication in a locality where epithelial cells have no legitimate citizenship. The matrix may occupy a vascular location from the very beginning, when embryonic epithelial cells have

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been displaced into mesoblastic tissue during the development of the embryo in the case of congenital matrices; or when in a burn or wound or an inflammatory process embryonic cells become buried in the mesoblast after injury, or destruction of the membrana propria in matrices of post-natal origin; or, finally, if the matrix is confined to the epiblastic or hypoblastic embryonic layer, the carcinoma dates back to the time when the embryonic cells passed through and beyond the membrana propria into the vascular mesoblastic tissues. The above warrants us in framing

PROPOSITION 2: Carcinoma is a tumor resulting from an atypical proliferation of epithelial cells from a matrix of embryonic cells of congenital or post-natal origin.

Origin and Histogenesis of Carcinoma.—The first attempt to trace tumors to their legitimate histogenetic source was made by Virchow, who believed that the carcinoma cells, like the cells of nearly all tumors, were derived from the connective tissue. He found epithelial cells far away from their normal location, and from their resemblance to epithelial cells he called them epitheloid cells. He believed that these cells were produced in the localities in which he found them. Virchow's theory predominated, until Remak established the doctrine of the independence of the different histologic elements, and founded the law of the normal succession of cells, which has remained firm and unaltered up to the present time. In the light of recent embryologic investigations, the doctrine of metaplasia, as expounded by Virchow and his contemporaries, is no longer tenable. Connective tissue can not produce epithelial cells, and epithelial cells are never transformed into connective tissue; hence,

PROPOSITION 3: The law of the legitimate succession of cells holds true in the origin and growth of tumors, both benign and malignant, as well as in the production of normal and inflammatory tissue.

Barfurth takes the position that tumors originate before and after birth from a partial or complete separation of cells or groups of cells from their organic connections, traumatism being an influence capable of causing the epithelial metastasis. The separated cells, no longer subject to the restraining influence of their normal connections, and still receiving an adequate nourishment, grow and form tumors which, according to the size and organization of the segregated mass, correspond in general structure with the organ from which they are derived, sometimes more, sometimes less.

A somewhat similar view is entertained by Adami, only he presents the subject in a stronger light, and bases upon it a new theory of tumor formation which he calls "habit of growth." This theory presents many convincing points. He says: "Briefly, this theory is based on the fact that cells and their descendants, which for long periods have been subjected to certain influences whereby their properties and structures have become modified, eventually retain those properties after the influences referred to have ceased to act upon them. I base it again upon that principle of inertia already indicated—a principle which some years ago (1896) in this connection I referred to as the 'habit of growth.' Whatever the origin, therefore, of the tumor proper, however it started, what makes the tumor is the assumption by the primary cells of that tumor of the habit of work, and according to the extent of this replacement, so do we set the various grades of tumor formation from the most benign to the most malignant."

Fabre-Domergue's theory of the nature of epithelial tumors is based on the supposition that from the most benign papilloma and adenoma to the most virulent carcinoma they all constitute an uninterrupted chain of genetic processes, the same only gradually varying tumors. The slightest disorganizations of the normal behavior are shown by the papillomata and adenomata, which he terms "entheliomata"; to these are added without any sharp lines of distinction the more disorganized epitheliomata and carcinomata. The cause of the abnormal growth is the *"disorganisation cellulaire,"* that is, the displacement of the axis and segmentation direction of the cells to the basal membrane. In a normal condition the nuclear karyokinetic figures stand perpendicular to the basal membrane, so that the equatorial plates form a parallel layer to the basal membrane. If segmentation takes place in another direction, it is an indication of tumor growth. This theory is a short-lived one, and I doubt if any other observer has made the same distinction between such karyokinetic processes in normal and tumor cells.

Ribbert maintains that carcinoma does not begin in the penetration of epithelial cells into the connective tissue, as taught by Thiersch and others, but from the growth of the subepithelial connective tissue. This subepithelial connective tissue proliferation elevates the epithelial cells, disturbs their proper anatomic relation, and envelops them in connective tissue; and these cells then continue to grow in the direction of least resistance, that is, in the lymphatics and connective tissue spaces. Hauser, with most modern pathologists, takes the opposite ground. He has observed during the very early stages in the growth of carcinoma of the stomach the epithelial lining hypertrophied and continuous with the submucous epithelial infiltration composed of cells of the same structure. The writer has seen numerous specimens of epithelial carcinoma of the skin presenting an identical picture during the very earliest stages of tumor growth. The connective tissue proliferation takes place later, secondarily, after the epithelial cells have invaded the vascular tissue. The earliest stage in the development of a carcinoma is invariably an active proliferation and migration of epithelial cells.

As carcinoma is always developed from a matrix of epithelial cells, and only embryonic cells possess migrating power, we are prepared to defend

PROPOSITION 4: As carcinoma always originates from epithelial cells, primary carcinoma in mesoblastic tissue is impossible from a histogenetic standpoint, unless a matrix of embryonic epithelial cells has become displaced during the development of the embryo, or when embryonic epithelial cells have become buried in mesoblastic tissues, after birth, by injury or disease.

W. R. Williams very correctly opposes the parasitic origin of carcinoma from the difference in the histologic structure of the cells which constitute the mass in carcinoma, and inflammatory products. Carcinoma differs morphologically, according to the structures whence it originates, and which it resembles histologically, as seen in the different organs; while inflammatory products present the same structure independent of their anatomic location or character of tissue involved. The great resemblance between the primary and secondary tumors could not be explained as the product of an inflammatory process. The writer has had numerous opportunities to examine specimens during the very earliest stages of glandular involvement, and has never failed to find as the nucleus of secondary tumor forma-

tion a group or groups of epithelial cells, which resembled invariably in every respect the cells in the primary tumor. These facts afford sufficient ground upon which to base

PROPOSITION 5: The histology and histogenesis of carcinoma speak against the parasitic origin of this disease.

Nearly all pathologists take it for granted that the stroma of carcinoma consists of the pre-existing connective tissue fibers and their descendants. Epithelial cells in normal and pathologic conditions are never converted into connective tissue. Carcinoma begins as an infiltration of the vascular connective tissue by migrating embryonic epithelial cells; hence the only source for the stroma is the connective tissue.

Williams, of Baltimore, finds that when the reticulum of the carcinoma is of new formation, it is usually devoid of elastic tissue fibers. The tumors in which newly-formed elastic fibers occurred either contained a large amount of connective tissue stroma, or the newly formed fibers were in connection with pre-existing elastic elements of the original tissue involved by the tumor. These, as well as numerous similar observations, lead to

PROPOSITION 6: The stroma of carcinoma consists of pre-existing connective tissue fibers and their descendants.

Asymmetric Karyokinesis in Carcinoma Cells.—The exaggerated vegetated capacity of carcinoma cells, as compared with the productive power of the cells of normal tissue, suggests irregular karyokinesis. Ferris has made an elaborate study of the morphologic changes in the cells in carcinoma. The most important of his observations shows that bipolar mitosis is more indicative of malignancy than the multipolar. The production of multipolar and asymmetric mitosis by chemic agents seems to suggest that a faulty chemistry may be a factor in the etiology of carcinoma. Hypochromatic and asymmetric mitosis are found usually only in carcinoma. Their presence, therefore, may prove of considerable diagnostic value.

Nedjelsky made an extended investigation of cell division more especially as it occurs in carcinoma. According to this observer, cells multiply by karyokinesis and by direct segmentation. In neither sarcoma nor carcinoma did he find any exclusive form of amitotic cell division, and in all pathologic processes various forms of amitotic cell division may be seen. In some of the tumors, particularly in an ovarian carcinoma, the author found both mitotic and amitotic segmentation.

Different types of pathologic karyokinesis were discovered in the tumor tissues studied. Amitotic cell division is initiated by an active increase in the size of the nucleolus which gradually segments. In some instances the nucleolus divides simultaneously into several new nucleoli. The division of the nucleolus is connected with that of the nucleus, the process, as a rule, being that the nucleolus lies at right angles to the long axis of the nucleus and approaching the walls of the latter, as it elongates, eventually fusing with it. The segmentation of the nucleus is often asymmetrical. The study of atypical cell division in tumors deserves accurate and more extended study.

Hemmeter places great weight on pathologic mitosis as an indication of malignancy. In carcinoma of the stomach he believes that a correct diagnosis can be made by microscopic examination of segments of tissue in the stomach contents by observing the presence of pathologic mitosis, more especially if with this condition the existence of atypical formation of tubules can be demonstrated. It is now a well-established fact that the carcinoma cells multiply by mitosis (Flemming), karyokinesis (Schleicher), nuclear segmentation (O. Hertwig), cytodiaresis (French authors). The process of segmentation as observed by different pathologists is usually atypical.

Pianese has made the most exhaustive study of the structural changes which take place in the epithelial cells in carcinoma during segmentation. He describes:

1. Comparatively typical, bipolar symmetrical mitosis. *a.* Hyperchromato-mitosis, hypochromato-mitosis. *b.* Giant mitosis.

2. Atypical mitosis. *a.* Pluripolar, atypical mitosis. *b.* Atypical, asymmetrical mitosis.

3. Abortive mitosis.

The above recent researches concerning the manner of cell division in carcinoma support

PROPOSITION 7: Carcinoma cells usually multiply by irregular, atypical karyokinesis, and this pathologic segmentation is an important indication of malignancy and as such is of considerable diagnostic value.

Local Growth.—One of the most conspicuous clinical features of carcinoma is its progressive extension *in loco*. The primary tumor grows at the extreme of the adjacent tissues, regardless of their anatomic structure. It respects no tissue. A carcinoma of the skin, if allowed to pursue its own course, attacks in succession the subcutaneous connective tissue, muscles, tendons, fascia, periosteum and bone. A carcinoma of the uterus frequently does not destroy life until the rectum and bladder have become involved. A carcinoma of the pylorus in the advanced stage usually involves the liver and pancreas. Local extension of carcinoma may also take place by the growth of the tumor masses in the interior of glandular ducts. In carcinoma of the breast, for instance, a perforation of one of the ducts by the tumor is followed by a speedy obliteration of its lumen by tumor growth which fills the duct somewhat in the same manner as an injection mass which becomes attached to the intact epithelial lining. There is no other tumor or disease that so constantly and to the same extent invades adjacent tissues and organs, and such clinical manifestation is a strong evidence of malignance, and is expressed in

PROPOSITION 8: The progressive extension of a tumor to adjacent tissues and organs, regardless of their anatomical structure, is a strong proof of its carcinomatous character.

Metastasis.—While Proposition 8 refers to one of the constant clinical manifestations of carcinoma, it is of less diagnostic value than the regional and general dissemination of the disease by metastasis, which is observed so constantly during the later stages of carcinoma. As a rule, regional metastasis takes place through the lymphatics; general metastasis through the systemic circulation.

The exhaustive researches of Regaud and Barjon appear to prove that the lymphatic vessels in carcinoma are destroyed, and are not reproduced, which must be regarded as a means of protection against regional and general infection. The large lymphatic channels are often used as pathways for the diffusion of carcinoma, but are seldom infected themselves. The cells from the periphery of the tumor ultimately find their way into the lymphatic channels, and are carried with the lymph stream to lymphatic glands, which serve the purpose of a filter, in which the migrating cells become entangled.

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localize and establish an independent center of tumor growth.

Borst has made a very careful study concerning the behavior of the endothelial cells lining the lymph channels when the seat of invasion by carcinoma. He found, 1, endothelial cells in a passive state, without a trace of alteration; or 2, they undergo inflammatory hyperplastic proliferation, and, finally, 3, they take part in the formation of new connective tissue. Even when the endothelial cells gave rise to a colossal proliferation, he could never satisfy himself that they were ever transformed into carcinoma cells, and took no part in the destructive process. On the other hand, they seemed to be in their normal as well as altered conditions antagonistic to the carcinoma cells.

The next proposition is upheld and fully endorsed by all pathologists of the present day.

PROPOSITION 9: Regional metastasis in carcinoma takes place exclusively through the lymphatic channels, and the pre-existing lymphatic structures take no active part in the origin and growth of the secondary tumors.

General Metastasis.—General metastasis may occur by the progressive extension of infection of the lymphatics after the last lymphatic filter has been passed and carcinoma cells find entrance into the general circulation, but such a source of general dissemination is rather the exception than the rule. Usually general metastasis takes place in a more direct manner by extension of the carcinomatous process to veins, and the entrance of carcinoma cells into the general circulation from a tumor thrombus. The researches of Goldman tend to prove that the veins in carcinomatous tumors are involved at an early stage. He stained the specimens by the Unna-Taenger orcein method. Even in the primary tumor he found the veins frequently implicated by the carcinoma tissue perforating the vein walls. The same takes place in the blood vessels of the carcinomatous lymphatic glands, and distant metastatic tumors. The arteries are seldom found involved by carcinoma to the extent of causing more direct general dissemination. The carcinomatous affection of veins appears either, 1, in the form of an obturating tumor thrombus with complete degeneration of the vein wall, or 2, as an intramural extension of the tumor with the symptoms of a proliferating endophlebitis, during which the lumen of the vessel and its wall may be preserved for a long time, or 3, a circumscribed perforation of the carcinoma cells into the vein. During this manner of extension of the tumor to the veins coagulation symptoms of the blood may be entirely wanting.

In all of those events, carcinoma cells reach the venous circulation and either become lodged in the vascular pulmonary filter, giving rise to secondary tumors in the lungs, or they pass through the capillary network of the lungs, enter the arterial current, and become arrested in the capillaries of a distant organ or organs, where they establish independent centers of tumor formation.

Ribbert explains the retrograde transportation of carcinoma cells through the venous system by assuming that the cells which enter the veins soon become surrounded by a layer of the third corpuscle of the blood, and, owing to the great viscidity of the minute embolus, become atached to the inner surface of the vein wall. Without impulse of the heart these minute epimural masses are propelled against the venous current and again become adherent to the intima, an occurrence which is repeated without the heart's action, so that eventually by this method of intravenous transportation wide retrograde dissemination of the disease may take place without obliteration of the lumen of the vessels.

Retrograde extension of carcinoma is of more frequent occurrence through the lymphatics than the veins.

Calzavara describes a very interesting case of this kind. The patient was a woman, 55 years of age, the subject of carcinoma of the body and cervix of the uterus. In the lateral wall of the vagina two hard submucous nodules were found just below the cervix. On removal of the uterus and the two nodules it was found that the uterine tumor presented the typical form of adeno-carcinoma. The submucous vaginal tumors presented an identical structure. In this case the migration of carcinoma cells from the uterine carcinoma through the lymphatics by the retrograde route is clearly shown, as the vaginal mucous membrane was intact. Retrograde extension of carcinoma through the lymphatics is not infrequently seen in advanced cases of carcinoma of the mammary glands after the disease has reached the superficial lymphatics of the skin. Undoubtedly in many of these cases the retrograde extension takes place by carcinomatous thrombo-lymphangitis.

Proposition 10 explains the usual manner in which general metastasis takes place in carcinoma.

PROPOSITION 10: General dissemination of carcinoma usually takes place by direct implication of veins in the primary or secondary tumors. Carcinoma cells reach the venous circulation from an intravenous tumor thrombus, by carcinomatous endophlebitis, or, finally, by perforation of the vein wall by isolated carcinoma cells. Retrograde intravenous extension of carcinoma is due to the transportation against the venous current of minute emboli of carcinoma cells surrounded by a mantle of the third corpuscles of the blood which move step by step upon the intima. Retrograde extension through the lymphatics may take place in the same manner, but there is very little doubt that it is more frequently the result of carcinomatous endolymphangitis.

Is Carcinoma on the Increase?—This question is attracting a great deal of attention at the present time, and is deserving a most careful investigation. Barling, Payne, Jackson and Park are of the opinion that the frequency of carcinoma is rapidly increasing. Statistics appear to sustain this view. From investigations made in Massachusetts with reference to this subject, W. F. Whitney comes to the following conclusions:

"1. the death-rate based upon the total number of deaths and the total population has been made; 2, the rate for each age period (decade) above 30 has been made; 3, the ratio of deaths from cancer to the total number of deaths above 30 and for each age period, also to deaths other than from acute infectious diseases. In whatever way the subject was studied there was found a marked increase in the death-rate from this disease."

Newsholme and Edmund Andrews claim that the alleged increase of carcinoma is more apparent than real. Substantial proof can be advanced for the correctness of this position. More accurate diagnosis, more frequent postmortems, a more general resort to operative interference and increased longevity are some of the more important arguments in proving the relative increase of carcinoma. Carcinoma is a disease of

advanced age, hence, with an increase in longevity the number of cases of carcinoma would increase. Andrews has shown by statistics that the average age of persons living in Chicago thirty years ago was 15 years, while at the present time it is 29 years. Before the microscope came into general use as a diagnostic resource many carcinomatous tumors were mistaken for something else, and vice versa. The great advances that have been made in diagnosis have revealed many internal carcinomatous affections that only two or three decades ago would have been overlooked. For these reasons we are warranted in stating in

PROPOSITION 11: The increase of carcinoma as claimed by some recent statistics is more apparent than real.

Etiology.—Very little actual progress has been made during the last five years in the elucidation of the etiology of carcinoma. This subject is receiving at the present time everywhere well-merited attention. In this part of the paper the writer proposes to utilize the more important literature on the parasitic nature of carcinoma *pro* and *contra*, which has accumulated during the last few years. Search for the microbe of carcinoma is a laudable undertaking, but so far it has not yielded any definite reliable results.

PREDISPOSING CAUSES.

Heredity—Every surgeon of large experience has met with numerous cases in which he could trace carcinoma to an hereditary origin. The writer has had cases in which the disease could be traced through several successive generations. The percentage of cases in which carcinoma has been shown to be hereditary is estimated differently by different authors. Paget found a family history of carcinoma in 33 per cent. of the cases collected. Bryant in 12 per cent.

In studying the influence of heredity, it is not fair to exclude from the statistics distant cancerous relatives, as has been done by Cripps, because it is well known that congenital deformities, physiognomy, and mental peculiarities frequently reappear several generations apart, and in distant relatives. There is no reason to doubt that an aptitude for carcinoma is transmitted in a similar manner. What such an heredity predisposition consists of is not known. There are few surgeons, if any, who would not subscribe to

PROPOSITION 12: Heredity is a generally recognized potent predisposing cause of carcinoma.

Age—Advanced age plays an important rôle in the etiology of carcinoma. De La Camp collected 9906 cases of carcinoma with special reference to age as a predisposing cause. Among this number there were only 19 cases less than 20 years of age. Four of these were observed in the new Hamburg hospital. One case was a girl, 19 years old, the subject of a large carcinoma of the ovary. The second case was a large ulcerating carcinoma of the stomach with extensive metastases in a patient 17 years of age. The third, a carcinoma of the pylorus, the size of a walnut, in a boy of 16. The last was a boy, 16 years old, suffering from carcinoma of the rectum with extensive metasases. The writer has seen a carcinoma of the breast in a girl, 21 years of age, a carcinoma of the rectum in a boy 17, and several cases of carcinoma of the stomach in persons between 25 and 30 years of age. These observations tend to prove

PROPOSITION 13: As a rule, carcinoma occurs in persons of advanced age, but occasionally is met with in persons less than twenty-five years of age, and in the latter case the disease is characterized clinically by its great malignancy.

Trauma.—Ziegler has studied the clinical history of 499 tumors in the Munich Clinic, from 1890 to 1895, with special reference to their traumatic origin. This number comprised 328 cases of carcinoma, and 171 of sarcoma. This author found the general assertion corroborated that sarcoma is more likely to follow a single injury; carcinoma, on the other hand, repeated injuries or continuous irritation. In the 328 carcinoma cases the disease developed after a single injury 35 times, and in consequence of prolonged irritation 92 times; in the 171 cases of sarcoma the disease could be attributed to trauma 35 times, chronic irritation 32 times. Löwenthal collected 800 cases in which tumor formation is claimed to have been the result of trauma, and he is inclined to believe as the result of his investigations that trauma has a greater influence in the etiology of tumors than is generally admitted.

PROPOSITION 14: Carcinoma seldom follows a single injury, but develops more frequently in consequence of repeated injuries or prolonged continuous irritation.

Racial, Dietetic, Climatic and Topographical Influences.—It is a well-known fact, confirmed by reliable and extensive statistics, that some races are much more predisposed to carcinoma than others. Diet appears to exercise some influence in the causation of carcinoma. Legrain states that epithelioma is unknown in Algeria, except as it appears in a European. This may possibly be due to an almost exclusive vegetarian diet. Verneuil and Reclus asserted long ago that the herbivora were much less liable to carcinoma than the carnivora; and they ascribe the sixfold increase in the number of patients suffering from carcinoma at their hospital the last forty years to the increased consumption of meat by the laboring classes.

Behla has made a study of the geographical influences in the causation of carcinoma. He states that carcinoma is very rare in the extreme northern and southern countries. The temperate zones of Europe, Asia and America appear to act as a predisposing cause. Carcinoma is very prevalent in Australia, rare in Central Africa, and almost unknown in New Guinea.

Haviland, in his researches, found the disease most frequently along river courses and in localities subjected to periodic inundations, while it is less prevalent in high altitudes and in the spring districts at the head of rivers. It was a noteworthy fact that geologically the alluvial soil appeared to constitute a local predisposing cause, while a chalky or lime soil had the opposite effect. Heimann made similar inquiries, and came to the same conclusions.

PROPOSITION 15: Among the predisposing causes of carcinoma must be enumerated racial, climatic and topographical influences.

Inflammatory Products, Scar Tissue and Benign Tumors.—Carcinoma not infrequently develops in the inflammatory product of tubercular affections of the skin. Desbonnet collected from different sources 86 such cases, and since that time a great many additional cases have been reported.

Goodhart has called especial attention to irritation as a cause of ichthyosis of the tongue and of carcinoma. It has been known for a long time that this superficial chronic inflammation of the tongue frequently precedes carcinoma. In many instances carcinoma of the tongue and of the mucous membrane of the cheek has

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been traced to prolonged irritation and inflammation caused by displaced carious teeth and to the sharp projecting margins of normal teeth. One of the most instructive illustrations of the influence of prolonged irritation and inflammation in the causation of carcinoma is chronic eczema of the nipple, known as "Paget's disease of the nipple." Another inflammatory product very often the starting-point of carcinoma is the wart. The warts upon the forehead and cheeks of aged persons, "verruca senilis," most frequently undergo such a transformation. The occurrence of carcinoma in an inflammatory product is undoubtedly due to the displacement or penetration of embryonic epithelial cells into the inflammatory product, where they are brought in contact with vascular tissue, which increases their vegetative capacity, and alters their habits of life. A similar histologic cause explains the frequency with which carcinoma develops in scar tissue, where the disease almost without exception begins as a subepidermal nodule from a matrix of embryonic epithelial cells buried in the mesoblastic tissues.

Among the benign tumors which are most prone to become transformed into carcinoma are the papillomata and adenomata. In both of these tumors the essential parenchyma of the tumor, the epithelial cells, are beyond the reach of blood vessels. Any and all influences, local and general, which are capable of stimulating cell growth beyond the physiologic requirements, and growth beyond the physiologic requirements, and which result in penetration of the membrana propia by young epithelial cells, are the causes upon which depends the transition of a benign epithelial tumor into a carcinoma. Among the local causes which bring about such a transformation of a benign into a malignant tumor may be enumerated injury, prolonged or repeated irritation, and incomplete removal of the benign tumor by excision, cauterization and ligation. The above remarks may be summarized in

PROPOSITION 16: Chronic inflammatory products, cicatrices and benign epithelial tumors produce local conditions favorable to the development of carcinoma.

Parasitic Theory of the Etiology of Carcinoma.—The local, regional, and systemic dissemination of carcinoma is strongly suggestive of the existence of some virus or microbe as the essential cause of the origin and spread of carcinoma. In many respects carcinoma resembles several infective processes, the microbic origin of which has been well established. The infectiveness of tuberculosis was recognized a long time before its microbic origin was demonstrated. Pathologists for years have made numerous experiments to prove the inoculability of carcinoma. Hahn, Bergmann, the writer and others have extended their experiments to the human being. In the case of an inoperable carcinoma of the leg, the writer implanted subcutaneously fragments of asceptic carcinoma tissue at two points on the affected limb. A little nodule formed at the point of inoculation during the first two weeks, which gradually disappeared after that time. These nodules represented the product of proliferation of the tissues adjacent to the implanted aseptic foreign substance, in response to the local irritation caused by the carcinomatous graft, which acted the part of a local irritant. The new tissue which formed around the graft was completely removed in the course of two or three weeks by absorption. It is my intention in this part of the paper to utilize the most important literature of the last five years pertaining to the efforts made to prove the parasitic origin of carcinoma, and the material utilized will be divided into two classes, according to the results obtained by experimentation.

Alleged Positive Results.—Among the first to study the parasitic origin of carcinoma upon a scientific basis were Nedopil (1881), Schenerlen, Schill and Frère, Darier, Wickham, Malassez, Albarran, Soudakewitsch, Pfeiffer, Sjöbring, Thoma, Podysoski, Delépine, Ruffer, Stroebe, Steinhaus, O. Israel, Karg, Eberth, Ribbert, Hauser, Hanau, Klebs, Ballance and Shattuck, Kurloff, Ohlmacher and Korotneff. Among the more recent investigators must be mentioned Plimmer, Roncali, Walker, Sawtschenko, J. J. Clark, Foa, Vedeler, Park, Sternberg and many others. The discovery of coccidia in the nuclei of carcinoma by Thoma, in 1889, gave rise to a renewed stimulus to the search of micro-organisms in carcinoma tissue. The parasites found in carcinoma and which have been credited with being the essential cause of the disease are the following:

Schizomycetes 1. (Schenerlen and Koubashoff); histozoons; coccidium of Darier. 2. Coccidium of Albarran. 3. Coccidium of Sjöbring; gregarina moncystidea, or, 4, Rhapalocephalus canceromatosus of Korotneff. 5. Ameba sporidium of Pfeiffer, or sarcolithus of Adamkiewicz. 6. Hematozoon or Kahaur. 7. Histozoon and ameba of Nepvean.

Blastomycetes: 1. Fuchsinophile bodies of Russell. 2. Canceromycet of Niesen. 3. Saccharomyces niger of Maffuci. 4. Blastomycetes of Sanfelice and Roncali.

The parasitic theory takes it for granted that carcinoma is an infectious disease of a chronic type, and is supported to a certain extent by clinical observations; because, if there is a disease, which, by its origin, its rapid development, the frequency of regional and general metastases, the accompanying profound impression on the organism proves to be infectious, it is carcinoma. However, all of the experiments so far made do not answer the requirements laid down by Koch to prove the parasitic origin of this disease.

Positive results from inoculation were obtained by Eiselsberg, Hanau, Francotte and Richter in mice; Firket in rats, Langenbeck, Follin, Lebert and Weber in dogs; Guyon in dogs and cats, and Quinquaud in guinea-pigs; Wehr made 26 experiments with one successful result only; Norinsky had two positive results in 15 experiments.

Hanau inoculated the base of the scrotum of three rats with fragments of carcinoma tissue from a carcinoma of the vulva of a female rat, with positive results. Pfeiffer succeeded in transmitting a carcinoma from one rat to another; Moran from one white mouse to another white mouse; Goujon from one guinea-pig to another, and Klencke from horse to horse.

Auto-inoculations in persons suffering from inoperable carcinoma are four in number. These experiments were made by Hahn, Cornil and the writer with three positive and one negative results (Senn).

Moran, quoted above, succeeded in inoculating a cylindric-celled epithelioma of a white rat through several generations of the same species of animals. Metastasis followed the inoculations. With each generation the transplantation of the neoplasm became more and more difficult, and the malignancy of the tumors produced was gradually diminished. Sanfelice believed that the bodies found in carcinoma cells were blastomycetes, because of their morphologic resemblance. He obtained a pure culture of a blastomyces, "sac-

charomyces neoformans," from the juice of fruits and cultivated it upon vegetable media. Injection of pure cultures in guinea-pigs produced a sarcoma-like tumor, with glandular involvement, and metastatic foci in the kidney, liver and spleen. The same results were obtained by inoculating mice, while rabbits and dogs proved more refractory. He also succeeded in isolating pure cultures of blastomycetes from human tumors and from tumors of cattle and pigs. The parasite thus isolated, however, did not manifest any pathogenic activity.

Plimmer repeated the experiments of Sanfelice and reached approximately the same results and conclusions. He found those bodies in 1130 out of 1270 cases of carcinoma examined. The number of parasites appeared to be proportionate to the malignancy of the tumor. In this respect the results of observation were the reverse of those observed by R. B. Greenough. The latter states: "Furthermore, those cases which showed the most satisfactory specimens of bodies, and of the four cases in which the bodies were most numerous, three were clinically characterized as being of slow growth." The cultivation of this parasite proved most successful under amebic conditions.

Max Schueller has found minute refractile spheres, oval or round, three times the size of a blood corpuscle, with a granular center and a capsule in giant cells of sarcoma and epithelial cells of carcinoma, and believes that these bodies are the cause of malignant tumors, but so far he has not succeeded in reproducing the disease in animals by inoculation. R. B. Greenough, of Boston, who has made a series of careful experiments on the so-called "Plimmer bodies," has reached the following conclusions:

"1. The appearances known as the 'Plimmer bodies' were found in each of 23 cases of breast cancer. 2. They were more numerous in the periphery of the tumors, and in the metastases. 3. They were not found in areas which had undergone even slight degeneration, whether before or after removal. 4. They were more numerous in the slow-growing carcinomata, and less frequently found in the rapidly-growing ones. 5. They were more numerous in scirrhus than in medullary or adeno-carcinoma types of cancer. 6. They were not found in three cases of the epithelioma type (one of which was a typical Paget's disease of the breast). 7. They were present in one case of ovarian carcinoma, and absent in another case of general peritoneal cancer, of probable ovarian origin."

The most recent contribution in support of the parasitic origin of carcinoma is from the New York State Pathological Laboratory, by H. R. Gaylord. The paper appeared in the May number of the *American Journal of Medical Sciences*, and contains much that will interest bacteriologists and pathologists in the near future. He is a firm believer in the protozoon theory of carcinoma. He found these bodies present in all malignant tumors examined in varying number and forms. He followed Plimmer's method of staining, which he considers a great advance in the parasitic study of carcinoma. The form and size of the parasite vary according to age. The mature form possesses ameboid movements. He reproduced the disease in several species of animals by different methods of inoculation. It is too early to accept or reject the deductions he formulates from his own researches. The work done in the important institution of which Dr. Gaylord is director will give a new impulse to the study of the parasitic nature of carcinoma, and within a short time we may expect reports from different laboratories confirming or correcting his conclusions. It is very unfortunate that this contribution first reached the lay press, because the profession for good reasons, regard with suspicion concerning startling discoveries heralded through the general press.

From the evidence produced above, it is not difficult to conceive that the parasitic theory of carcinoma at the present time is based upon inadequate experimental proof. Two great objections present themselves against the validity of the claim that carcinoma is a parasitic disease: 1. The variety of microbes and bodies which have been found in carcinoma tissue by different experimenters, and for all of which, at different times and by different authors, the same specific pathogenic qualities have been claimed. 2. The histologic structure of the products of implantation of carcinoma tissue, or inoculation with the supposed carcinoma germs, does not correspond with the structure of a true carcinoma. This statement applies with special force to the fruit germ of Sanfelice. During the early period of scientific investigation of the cause and nature of tuberculosis, many experimenters produced in different ways local and metastatic pathologic conditions, which resembled in many respects genuine tuberculosis histologically, but lacked the essential microbic cause, and hence was designated as pseudo-tuberculosis. For the same reason, the new tissue produced by the implantation of carcinoma tissue, or inoculation with the so-called carcinoma bodies, might very properly be called pseudo-carcinoma.

In the light of searching criticism, the results of experimentation on the positive side of the parasitic theory of carcinoma can be summed up in

PROPOSITION 17: The positive results of implantation and inoculation experiments have so far failed in establishing beyond all doubt, upon a bacteriologic and histologic basis, the parasitic theory of carcinoma.

Negative Evidence of the Parasitic Origin of Carcinoma.—A vast amount of material has accumulated during the last few years, calculated to combat the claim made by a number of enthusiasts that carcinoma is a microbic contagious disease. The contagiousness of carcinoma is firmly believed by the people, and this opinion is firmly rooted for a long time. A few isolated cases of carcinoma of the penis, attributed to sexual intercourse with women the subject of carcinoma of the uterus, furnish no proof of the contagiousness of carcinoma, as Demarquay collected 134 cases of carcinoma of the penis, and only one of the patients had been exposed to such a source of infection.

No well-authenticated case of inoculation carcinoma has occurred among surgeons who have frequently injured their fingers and hands during operations for carcinoma, while inoculation tuberculosis from the same cause has been frequently observed. The same can be said of persons who take care of carcinoma patients, or who live with them in the same room.

A number of interesting cases of auto-inoculation have been reported by Waldeyer, Klebs, Spiegelberg, Luecke, Kaufmann, Ricard, and Hyvert. At least some of these inoculations are wrongly interpreted, as extension to adjacent parts may have taken place through the lymphatics. Carcinoma epidemics have been described by Arnaudet, Brown, Desplons, Roy, Lucas-Championnière and Marrichon, but these reports have not been confirmed by subsequent and more reliable observations.

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Pianese mentions the four cases of inoculation from man to man by Alibert, who experimented upon himself and his students, all with negative results.

On May 4, 1901, the writer inoculated himself with carcinoma tissue immediately after he had completed a radical operation for advanced carcinoma of the lower lip. The patient from whom the malignant graft was obtained was an Irishman 60 years of age. The submental and submaxillary lymphatic glands were involved. The glands were immersed in warm saline solutions and from one of them a fragment the size of a split pea was used for implantation. A small incision was made about the middle of the forearm over the supinator muscles under strict aseptic precautions. One of the margins of the little wound was undermined sufficiently to make a pocket large enough to receive the graft. After implantation the wound was closed with a horse-hair suture and iodoform collodium. The operation was performed by one of my assistants, Dr. Lyman. The carcinomatous nature of the glandular affection was proven by microscopic examination of the gland from which the graft was taken. In the course of a week a nodule the size of a pea made its appearance, which remained stationary for two weeks when it gradually disappeared. At the present time (June 22) a linear red scar indicates the site of implantation.

Inoculations from man to animals, made by Peyvilhe, Schweninger, Klebs, Cazin and Duplay, Valentin, Vogel, Weber, Dubuisson, Hyvert, Chatin, Henocque, Billroth, Villemin, Cothin, Shattuck, Paulowsky, Fischel, Bogninet, D'Auna and Arcangeli, Pianese and Mayet were all negative. Inoculations from animal to animal were made on an elaborate scale by Paul Bert, Rinne, Doutrelepont Duplay and Cazin, Lablanc, Senn, D'Auna, Trasbot, Cadiot, Thiroloix, all with negative results.

Sippel implanted fresh carcinoma tissue underneath the dura in 25 rabbits. In not one instance were metastases or lymphatic infiltrations observed.

Peterson and Exner made experiments on guinea-pigs and mice with the saccharomyces neoformans of Sanfelice. They witnessed a general dissemination of this organism throughout the body of the animals experimented upon, but came to the conclusion that this yeast fungus has no connection whatever with the etiology of malignant tumors; and that the cellular inclusions in carcinoma are to be identified only to a limited extent with the fungus, and, finally, that the diseases in man attributed to the saccharomyces have absolutely nothing to do with malignant tumors.

According to Sternberg, Maffuci and Sirleo, the new tissue produced by some blastomycetes when injected into animals can not be regarded as having the histologic structure of carcinoma or sarcoma, but rather as granulomatous productions.

Fabre-Domergue, in his recent work on epithelioma, is outspoken regarding the parasitic origin of carcinoma. He says: "The forms described as sporozoa have merely the morphologic resemblances and not the true characteristics. All the pseudo-coccidia so far pictured are connected by insensible gradations with the tumor cell, from which they emanate by way of degeneration."

Gratia and Lénaux have made inoculation experiments with fresh carcinoma tissue into the lower animals, and uniformly failed to reproduce the disease. Fresh tumor tissue was ingrafted into the skin, the peritoneal cavity, and the walls of the stomach. Fresh carcinoma juice was injected into the organs most frequently the seat of the disease. They did not succeed in transmitting the disease from human to dog, or from dog to dog, and consequently conclude that contagiousness direct or indirect has not been present; that the parasitic origin is yet a matter of doubt; that the course and pathogenesis are still undecided.

Kurscherf and Bartsch repeated the experiments of Adamkiewicz on carcinoma implantation. They ascertained that if careful aseptic precautions were employed, the grafts degenerated and were absorbed.

Suspecting that the soil had something to do with the prevalence of carcinoma, Ruver obtained soil from parts of England where carcinoma is prevalent to a high extent, mixed it with the pulpified carcinoma tissue and placed rats upon it so that the feet and tail were constantly in contact with the mixture. The animals were also exposed to the spray of carcinoma tissue, and the accessible mucous membranes were kept in a state of irritation, and yet, in spite of all those potent etiologic agencies, the disease could not be reproduced in the animals thus experimented upon.

Sternberg has arrived at the conclusion that, while the investigations into the parasitic origin of malignant tumors have given rise to a more careful study of the cells, they have not advanced our knowledge of the etiology of tumors a single step. MacFarland, from his own observations, and studies comes to the conclusion that carcinoma is not a specific disease, that its etiology may be said to be dependent upon the inherent proliferative tendency of the epithelium; that is, it is epitheliogenetic, not parasitic.

Curtis has been experimenting five years with the saccharomyces tumefaciens. In that time he has never been able to produce a real tumor, compared to those observed in the human subject. The lesions produced were always the same; either a local growth of the fungus, sometimes of large size, or an inflammatory product with leucocytosis and more or less connective tissue proliferation—a granuloma. He makes the assertion that in non-ulcerating carcinoma he has never seen a single blastomyces.

Duplay and Cazin decide from their own observations that it is improbable that malignant growths are transmissible, either by graft or inoculation, from animals of one species to those of another.

Steinhaus has well said recently: "It is time to take up again the investigations on carcinoma, without neglecting the scientific method, as the principal cause of the errors committed so far is due to the neglect of the scientific method."

Peterson regards Darier's psorosperms to be forms of degeneration of the epithelial cells. He obtained his best pictures by staining with pictrocarmin and hematoxylin. The latter was used in weak solution and the preparations were overstained. They were then removed for from one-half to two minutes to a solution of the ferric sulphate oxydatum, and then decolorized in HCl—alcohol.

The painstaking researches of Pianese, of Naples, seem to prove that all carcinoma parasites so far discovered and described are the products of cell alterations.

Schwarz made a critical study of 40 cases of carcinoma in reference to the parasitic origin of the disease, and came to the conclusion that the "carcinoma parasites" which have been described under different names are either leucocytes or the products of cell degeneration and abnormalities of nuclear segmentation.

He discusses at length and in a logical manner the intracellular and extracellular cell inclusions.

Lubarsh, in his recent classical treatise ("Zur Lehre von den Geschwülsten u. Infektionskrankheiten," Weisbaden, 1899), studied the blastomycetic theory of Sanfelice, Roncali, etc., experimentally, and obtained only negative results.

All inoculations with Sanfelice's original cultures without exception yielded negative results. The experimental work of E. H. Nichols, of Boston, in search for the parasite of carcinoma, its cultivation and attempts to reproduce the disease artificially in animals, is summed up by him as follows:

"Typical cancer bodies have been found generally present in certain types of cancer. They never have been found in epidermoidal cancer. Attempts to produce cancer in animals by inoculating them with bits of tissue from human cancer so far have uniformly failed. No attempt to isolate an organism from human cancer has succeeded. Inoculation of animals with the organisms of Sanfelice and Plimmer has resulted in the formation of nodules composed of proliferated connective tissue cells and newly formed blood vessels (granulation tissue), but no tumor resembling cancer of human beings has been produced."

Professor Adami, in his recent instructive article on carcinoma, says: "In other words, so far as our present knowledge permits us to conclude, bacteria—schizomycetes—below a certain degree of toxicity of their products, can not maintain an existence in the tissues of animals. They succumb to the anti-bacterial mechanisms of the organism, and, succumbing, any proliferative activity they may have induced comes to an end. In plants, it is true, we meet with definite bacteria living a symbiotic existence in the rootlets and causing well-marked overgrowths. It may be eventually found that bacteria are capable of initiating progressive cell growth in the higher animals, but of this power proof is so far wanting." Again: "Continuous purposeless growth is characteristic of all forms of tumors proper; nevertheless, as I have already stated, in a very large group of tumors all the evidence we possess points surely to the fact that microbes have not initiated the growth, and are not concerned in the continuance of the growth." The evidence introduced to prove the non-parasitic side of carcinoma overbalances by far the testimony furnished on the positive side, both as far as the number of investigators is concerned, and the logical deductions drawn from their work. We are, therefore, warranted in stating in

PROPOSITION 18: A careful study of the experimental researches and bacteriologic and histologic investigations concerning the etiology of carcinoma does not at the present time warrant us to claim for this disease a parasitic origin.

TREATMENT.

As we are still ignorant concerning the essential etiology and true nature of carcinoma, the treatment pursued up to the present time has been largely of a palliative, tentative and empirical nature. The only real advances made have been in its operative treatment. It is true, from time to time remedies have been proposed for which specific curative properties were claimed.

Internal Medication.—Arsenic, condurango, turpentine, chelidonium, and many other drugs administered internally have all had their advocates, but none of them on extensive trial have shown any decided, to say nothing of specific, curative effect in retarding or arresting the growth of carcinoma.

During one of the meetings of the American Medical Association, Washington Atlee extolled the therapeutic virtues of arsenic in the treatment of carcinoma, more especially after operation, with a view of preventing a recurrence. He insisted that this drug should be invariably administered, and that its use should be enforced, even if the stomach would tolerate only a fraction of a drop of Fowler's solution. Since that time the writer has always followed out his directions, but after an extensive experience he is not prepared to assign to it any curative properties whatever. Jonathan Hutchinson is of the opinion that the use of arsenic rather favors than retards the evolution of carcinoma.

Denissenko claims to have obtained more benefit from the internal use and subcutaneous injections of chelidonium majus. The injections were not made into the tumor, but into the tissues surrounding it, where the injected irritating substance initiates a sclerosis like other sclerogenic agencies. The injections used were composed of half a gram of the extract and the same quantity of water, properly sterilized by boiling, and injected every two to five days.

Berezkin gave this remedy a faithful trial in nine cases by internal administration and hypodermic use, and failed to observe the slightest curative effect.

J. Carne Ross asserts that the internal use of large doses of cinnamon mitigates the pain and retards the growth of carcinoma.

Mr. Snow advocates very strongly the use of opium as soon as it has been ascertained that the disease is beyond the reach of a radical operation.

PROPOSITION 19: The experience of centuries and the internal use of innumerable remedies have demonstrated that so far carcinoma has not been materially influenced for the better by this method of treatment.

Parenchymatous Injections.—Direct medication of the carcinoma tissue by parenchymatous injections has had an extended but unsatisfactory trial. Acetic acid, nitrate of silver, and the different antiseptics have all failed in making a curative impression on the evolution of the disease; in fact, in most instances tumor growth was favored by such attempts. Schwalbe many years ago advocated the injection of alcohol into the loose connective tissue around the periphery of the tumor, and reported a number of cases in which this treatment appeared to have been useful in retarding if not arresting further growth of the tumor. The stimulating effect of this powerful antiseptic on the connective tissue resulted in sclerosis and diminished the blood supply to the tumor. The writer has given this treatment an extensive trial, and believes it is the least objectionable and most useful form of treatment by parenchymatous medication. He has used Lannelongue's sclerogenic chlorid of zinc solutions with similar results. The experience with parenchymatous injections up to the present time is voiced in

PROPOSITION 20: Direct medication of carcinoma tissue by parenchymatous injections has no influence in retarding or arresting the growth of carcinoma, while the injection of sclerogenic substances into the connective tissue around the border of the tumor appear to restrain the local extension of the disease by impairing the blood supply to the parenchyma of the tumor.

Local Applications.—Upon the very highest authority methyl-blue was recommended a few years ago as a

local remedy in the treatment of carcinoma. The ease with which this staining material permeates the protoplasm of cells was considered a strong argument in favor of its therapeutic value. Accumulated experience, on the whole, with the use of this agent has been disappointing. Darier has seen good effects from the local application of a 20 per cent. solution to open, ulcerating carcinoma. He advocates strongly as a palliative measure the conversion of an open into a closed carcinoma by a plastic operation about the fifteenth or twentieth day after treatment with methyl-blue.

W. Mitchell recommends the local use of formalin in the treatment of certain inoperable malignant tumors. He uses a 20 per cent. solution. The dry eschar produced by the formalin is removed after a few days, when the formalin is again applied, and this procedure is repeated until the tumor is removed. The applications occasion a great deal of pain, and are followed by considerable edema of the surrounding tissues. Very little is to be expected from local applications in the treatment of ulcerating carcinoma; hence it is safe to assert in

PROPOSITION 21: Local applications of any kind in the treatment of ulcerating carcinoma must be considered at best only in the light of palliative measures.

Cauterization.—Among the earliest attempts to destroy carcinoma were the red-hot iron and chemical caustics. This method of treatment has its advocates to-day.

Czerny and Truneck have found a solution of arsenic in equal parts of alcohol and water, 1 to 75, of much value in the treatment of ulcerating non-operable epithelioma. The ulcerated surface is thoroughly cleansed and brushed daily with the solution, and the eschar is gradually thickened. With the increase in the thickness of the eschar a stronger solution is applied. Pain is caused only in the beginning of the treatment. Finally, the eschar becomes detached and the epithelioma is destroyed. Three cases of extensive epithelioma of the nose in aged persons are reported as cured. This treatment was given a thorough trial in four cases of epithelioma of the skin in Bruns' clinic, and Honsell, who made the report, states distinctly that in all of them the result was negative. The arsenical application did not affect the carcinoma tissue to any extent. It is safe to affirm in.

PROPOSITION 22: The actual cautery and chemical caustics have only a limited field of usefulness in the treatment of open inoperable carcinoma. They should never be employed in the treatment of closed carcinoma, as a substitute for the knife.

Serum Treatment.—If carcinoma is a microbic disease, the search for a healing serum must be regarded as the most logical attempt to find an effective cure. So far all efforts in this direction from Adamkiewicz carcinoma serum to Coley's fluid have proved utter failures. Coley himself does not claim much for his toxins in the treatment of carcinoma. The report on Coley's treatment, made in 1896 by Stimson, Gerster and Curtis, to the New York Surgical Society, represents the experiences and opinions of nearly every surgeon who has given the treatment an extended trial. "1. The danger of the treatment is very great. 2. The alleged successes are few and doubtful in character, and the most that can be fairly claimed for the treatment by toxins is that it may offer a slight chance of amelioration. 3. Valuable time is often lost in operable cases by pursuing the treatment. 4. The method should never be resorted to except in absolutely inoperable cases."

The writer has given this treatment a long and faithful trial in a very large number of operable cases, and has never witnessed the slightest improvement; on the other hand, it generally aggravated the local conditions and hastened the fatal termination.

Peterson made a careful study of the literature of the bacterial treatment of malignant disease, more especially of the cases treated in Czerny's clinic, and came to the conclusion that the treatment is not of the slightest use in carcinoma; that in very exceptional cases sarcoma disappears under its influence; and that the treatment itself possesses many elements of danger.

The employment of blood serum obtained from animals, goats, dogs, asses and sheep, treated by injecting carcinoma juice until the animals no longer responded, has also yielded only negative results. Six years ago this method of treatment was highly extolled by Emmerich and Scholl, and Richert-Héricourt and a number of other French surgeons. The latter reported fifty cases treated by this serum, and claimed to have observed marked improvement in the symptoms under its influence. Bruns treated five cases of carcinoma, and one of malignant lymphoma, by this method. In not a single case did the injections prove of the slightest benefit in diminishing the size of the tumor.

Rydygier made use of the Emmerich-Scholl carcinoma serum in three cases of inoperable carcinoma. Not the slightest curative effect was observed in any of them. The negative results following the different methods of serum treatment heretofore employed would speak rather against than in favor of the parasitic nature of carcinoma.

PROPOSITION 23: The treatment of carcinoma by different sera has without any exceptions yielded only negative results.

Operative Treatment.—The operative treatment of carcinoma has undergone a decided improvement during the last decade. A better knowledge of the manner of local and regional extension of the disease has resulted in a more effective and radical technique in operations upon different organs and regions of the body. The more radical procedures are the outcome of the laborious and accurate researches of Heidenhain, who showed the way to surgeons in following the disease along the pathways of local and regional extension. He emphasized the importance of early and thorough operations. He was one of the first who, upon a scientific and anatomic basis, urged surgeons to perform more radical operations, by following the regional lymphatic channels and glands and remove them with the organ primarily affected. He insisted that local recurrences are seldom the result of traumatic inoculation, but follow in consequence of imperfect removal of the regional metastases. Every surgeon now recognizes the importance of early and radical operations. In this country Halsted was the first one who fully appreciated the teachings of Heidenhain, and accepted and applied in his practice his suggestions. In his last paper on the operative treatment of carcinoma of the breast he makes his operations more radical of late. He almost invariably removes both pectoral muscles and clears out the supraclavicular space, and says in defense of this procedure that in 34 per cent. of cases of mammary carcinoma it will be found that the disease has extended to this region. He does not consider it necessary to divide the clavicle preliminary to this

step of the operation. He begins the dissection at the junction of the internal jugular and subclavian veins, and this point is exposed by a vertical incision along the posterior border of the sterno-cleido-mastoid muscle. He now removes both pectoral muscles, and thinks it probable that he will come to remove the contents of the anterior mediastinum. Of 76 patients operated upon over three years ago, 31 are now living, without evidence of local recurrence of metastasis. Of 10 patients who died, more than three years after the operation, only one showed local recurrence. Thus, over 52 per cent. of his patients lived more than three years without either local recurrence or metastasis. This is certainly an enviable record, which it would be found difficult, if not impossible, to duplicate, and furnishes the strongest argument in favor of the most radical treatment.

Sanderson and others approve of the clearing-out of the supraclavicular space when the apex of the axilla is extensively involved, or when the supraclavicular glands are enlarged.

A. Lane advises section of the clavicle as a preliminary to clearing-out the triangle, but, as a rule, this can be done without dividing the bone. In very extensive disease of the axilla, supraclavicular space and Mohrenheim's fossa, the same author advocates amputation at the shoulder joint. He argues that in such cases the loss of the arm would in any case result from the dissemination of the disease, and death would soon follow, consequently we are justified in sacrificing the arm, because we may obtain full recovery with merely the loss of the arm. The same heroic treatment under similar conditions was recommended by Theodore McGraw in 1878, but it is doubtful if the suggestion from either of these sources will ever become an accepted practice. The same radical procedures which are now so generally practiced in the removal of a carcinomatous breast are being applied with the same thoroughness in the removal of other organs. Thus, in carcinoma of the lip, it is not generally conceded that the submental and submaxillary glands should be removed with the adipose and connective tissue in one connected piece at the same time.

As one of the modern curiosities in the modern operative treatment of carcinoma must be mentioned the suggestion first made by Beatson, to perform oöphorectomy for carcinoma of the breast. Cases have been reported by Beatson, G. E. Herman, Stanley Boyd, Watson Cheyne, and others. The results were usually only temporary, if any. Cheyne believes the operation might prove of value in young subjects. The curative effect of this operation is attributed by its advocates to the occurrence of atrophy of the gland, and fatty degeneration of its parenchyma, which conditions are established after the normal menopause, and hence would follow the anticipated menopause by the removal of the ovaries. This freak of modern surgery will not find any new advocates. The modern operative treatment of carcinoma is summed up in

PROPOSITION 24: The early and radical operative treatment in carcinoma offers the only prospect in permanently eliminating the disease.

Contra-indications to Operative Treatment.—The operative treatment of carcinoma has at the present time its well-defined limits. Many lives are lost prematurely and much additional suffering induced by indiscriminate operations for malignant disease. A radical operation is only indicated if, from the extent of the disease and the physiologic importance of the organ primarily involved, all diseased tissue can be removed without any immediate or remote danger to life. An incomplete operation invariably aggravates the local conditions and shortens life. An incalculable amount of harm has been inflicted by ignoring the importance of contra-indications to radical attempts, and many patients have succumbed prematurely to such indiscreet attempts. The surgeon has no right to cut life short by such interference simply because the patient is suffering from an incurable disease. If the general and local conditions of the patient are such as to preclude the possibility of obtaining a result warranting a radical attempt, the surgeon must be content to limit his functions to palliation and should never ignore, from a moral and professional standpoint, the significance of the time-honored adage, *nil nocere*.

Time of Recurrence.—Carcinoma statistics showing the permanency of the curative results of operative treatment are very misleading. The three-year limit is still regarded as a standard, which is certainly a great mistake. The writer has seen in a number of his cases recurrence at the site of operation six and seven years after operation, in consequence of which he has become fully convinced of what is stated in

PROPOSITION 25: The permanency of the results of the operative treatment of carcinoma can not be determined in less than ten years after the operation.

PROPOSITION 26: A radical operation for carcinoma should never be attempted unless the local conditions and general health of the patient are such as to promise an equivalent of the immediate and remote risks to life and comfort involved by the operation.

Suggestions.—If carcinoma is, as we have every reason to believe at the present time, the produce of an erratic cell proliferation beyond the limits of the influences which preside over and regulate normal tissue growth, it appears rational to search for some remedy which would affect the parenchyma of the tumor in one of two ways: 1. An agent or agencies which would destroy the epithelial cells by causing speedy and early degeneration of the imperfectly developed epithelial cells. 2. The employment of a local or general remedy or remedies possessing the power of converting embryonic into mature epithelial cells. Ligation of the principal arteries supplying the tumor tissue with blood, and the employment of sclerogenic substances have been employed for the purpose of accomplishing the first object, but so far only with indifferent results. Very little, if anything, has been accomplished in the conversion of the low type of epithelial tissue into mature tissue, that is, in transforming a carcinoma into a benign epithelioma. It is, however, not beyond the range of possibilities that future experiments and observations will open up a wide field of usefulness by the discovery of such agencies that will exert a beneficial or curative effect on the essential tumor elements by inciting degenerative processes, or by converting them into tissue of a higher, mature type; remarks which lead us to frame

PROPOSITION 27: Taking it for granted that carcinoma is the product of an erratic, planless cell growth outside of the range of the physiologic influences which preside over and regulate normal growth and tissue repair, it appears logical in the search for curative agencies to make experiments and observations with the view of finding a remedy which would destroy the tumor by causing an early and speedy degeneration of

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its parenchyma, or which would possess the property of converting embryonic into mature epithelial cells, thus converting a carcinoma into a benign epithelioma.

CIRRHOSIS WITH PIGMENTATION.*

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The cases of cirrhosis of the liver with pigmentation of the skin or tissues, or of both together, constitute a small but most interesting group. There has been a great deal of speculation as to the etiology of these cases. The purpose of this paper is to present as briefly as possible the history of this form of cirrhosis, the clinical symptoms and pathology of the disease and the present views entertained concerning its etiology.

HISTORY.

Pigmentation of the skin and tissues, other than that resulting from the staining with the bile, does not occur in association with the atrophic cirrhosis of Laennec. In 49 cases of this type of cirrhosis that have been treated in the medical wards of the Johns Hopkins Hospital up to the present date, no single instance of permanent pigmentation has been observed. Of 8 cases of hypertrophic cirrhosis of the liver 1 presented a remarkable grade of bronzing of the skin. Reference may be made here to the fact that a considerable percentage of a consecutive series of livers at autopsy have been shown to contain iron-holding pigment in the liver cells and connective tissue. Thus, Lindemann[1] examined 25 livers, which practically showed no pathologic change, and found a deposition of iron-containing pigment in about two-thirds of them. Kretz,[2] on the other hand, in the examination of a much larger series, found hemosiderin in only 5 to 6 per cent. of the livers.

The forms of cirrhosis with pigmentation have been studied chiefly by German and French physicians. Previous to two years ago, when Opie[3] reported a case, there was practically no literature on the subject in English, with the exception of a brief reference to a case by Adami.[4] in 1898. The most comprehensive review of the subject has been made by Anschütz.[5]

The French physicians were the first to draw attention to the pigmentation of the skin in association with cirrhosis of the liver. In 1882, Hanot and Chauffard[6] described 2 cases of diabetes mellitus associated with hypertrophic cirrhosis of the liver and bronze-like pigmentation of the skin. The autopsy on the first case showed cirrhosis of the liver, characterized by wide bands of connective tissue. The liver cells, as well as the interlobular connective tissue, contained brown pigment granules in great quantities. The second case, which was more carefully studied, showed definite brown pigmentation of the pancreas and liver, both of which were the seat of advanced chronic interstitial inflammation, the parenchyma and connective tissue both containing masses of pigment. The stomach and duodenum were of a bluish-black color and pigment in small granules was found beneath the serosa. Four years later, Letulle reported two similar cases. In 1886, Hanot, in association with Schachmann, published a fifth case. He believed that the knowledge acquired from the study of these five cases established the existence of a new form of cirrhosis, *cirrhose pigmentaire diabètique*, and of a new clinical condition, *diabète bronzé*.

CLINICAL SYMPTOMS.

The clinical symptoms of the condition known as *diabète bronzé* are quite similar in all cases. Anschütz analyzed twenty-four cases which he had found in the literature up to 1899. The picture is one of rapidly fatal diabetes mellitus, associated with cirrhosis of the liver, usually of the hypertrophic variety. The diabetic symptoms have manifested themselves in the majority of cases within one year previous to death. Pigmentation of the skin is usually present but not constant. All the 24 cases were in males; Letulle has stated that of 30 known cases all were in men. The cases have all occurred between 30 and 60 years of age and the majority have been in the fourth and fifth decades. It has been thought that the disease is more common in France than elsewhere and the fact that 17 of the 24 cases occurred in that country would seem to support this belief. This frequency may, however, be due to the French physicians being more familiar with the condition and less likely to overlook its occurrence.

PATHOLOGY.

At autopsy the liver presents the features of a pigmentary cirrhosis. This was the type in 23 of the 24 cases. The liver was enlarged in all the cases but one. An ochre-colored pigment containing iron was present in the liver cells and connective tissue of all the cases. In 2 cases no statement was made concerning the condition of the pancreas. Of the remaining 22, all showed gross changes excepting one. In the 18 cases in which a microscopic examination was made, pigmentation of the glandular epithelium and connective tissue was present, and in 15 of the cases there was marked increase in the amount of connective tissue. The ochre-colored pigment is also present in the muscle fibers of the heart and in the lymphatic glands. The frequency of the occurrence of sclerosis of the pancreas is of importance from the standpoint of the etiology of the diabetes.

ETIOLOGY.

There has been much speculation regarding the pathogenesis of these cases of *diabète bronzé*. Hanot, Chauffard and Schachmann have held that the primary etiologic factor is the diabetes mellitus. They believe that the diabetic alteration of the blood, in association with endarteritis, which has been constant in their cases, causes a nutritional disturbance of the liver cells, with a consequent alteration of the pigment metabolism and a deposition of pigment within the cell-body. They further believe that the pigment thus formed is reabsorbed by the capillaries, and diffused possibly in the form of emboli over the entire organism. As the same form of pigment deposition takes place in other organs —e. g., the heart—as that which takes place in the liver, Letulle came to the conclusion that the pigment is formed in the cells of the various organs in which it is found, from the hemoglobin of the blood. He also holds that the diabetes is primary and thinks that the disintegration of the hemoglobin occurs under the influence of the hyperglycemia. Brault and Galliard, Hernandez, Mossé and others also consider the diabetes the primary and essential cause of the pigmentation.

Another smaller group of observers hold that the pigmentation is produced by a primary disease of the blood and that as a result of some fundamental cause

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there is an alteration of the blood and subsequent formation of pigment from the altered hemoglobin. An explanation must then be sought for the associated diabetes and cirrhosis of the liver. Marie holds that as a result of some primitive cause, there follows a dissolution of the hemoglobin, which is transformed by the protoplasm of the various body cells into pigment, which is deposited in them. This pigment in turn causes a degeneration and destruction of the containing cells and consequently a chronic interstitial inflammation of various organs, particularly the liver. He believes that bronzed diabetes is neither clinically nor pathologically the classic diabetes, but a distinct morbid entity. Acard, Dutournier, and Jeanselme support Marie's theory, and suggest that the diabetes is possibly only an accessory phenomenon which appears alone when the chronic interstitial pancreatitis reaches a certain grade.

In 1889 von Recklinghausen[7] described, under the name of "hemochromatosis," a condition of pigmentation affecting various organs. This pigmentation, he states, may be either local or general. Brown pigment, which he thinks is derived from the hemoglobin of the blood, is deposited within certain tissues and gives to them macroscopic pigmentation. Quincke, in 1877, had already described a case of diffuse pigmentation in anemia, and Tillmanns observed a case of pigmentation of the liver and lymph glands following trauma. Further, Hindenlang had described a pigmentary infiltration of the lymph glands, liver and other organs in a case of morbus maculosus Werlhofii.

The anatomical features of von Recklinghausen's hemochromatosis cases are striking. The majority of the glands of the body have a deep brown color and their secreting cells contain reddish-yellow or ochre-colored granules. The liver is usually enlarged and often enormously so, the enlargement frequently involving the left lobe to a greater extent than the right. The ochre-colored granules are contained in the parenchyma cells and in Kupffer's cells, and their presence gives the organ a brownish, slaty appearance. The pancreas is usually enlarged and shows chronic interstitial disease. The pigment has the same distribution and appearance as in the cases of diabète bronzé already described. The spleen is often very much enlarged, firm and pigmented. The skin, when pigmented, shows a deposition of pigment in the cells of the sweat glands. This pigment, so far considered, has been shown to be an iron-containing pigment. A second kind of pigment, differing from the first by its occurrence in finer granules of a pure yellow color, is found in the smooth muscle cells of the stomach and intestines, of the blood and lymph vessels and rarely in those of the urinary bladder and vas deferens. It also occurs in the connective tissue of certain localities, for example, Glisson's capsule, the splenic trabeculæ and the sheaths of blood vessels. This yellow pigment does not give the reaction characteristic of iron. Von Recklinghausen called the iron-containing pigment "hemosiderin," the iron-free pigment "hemofuchsin." He thinks that both of these pigments are derived from the hemoglobin.

Von Recklinghausen described 12 cases which he considered examples of local and general hemochromatosis. He defines hemochromatosis as a condition of pathologic pigmentation due to the deposition of pigment derived from the blood. There is a form of localized pigmentation of the intestine, caused by the deposition of fine yellow granules in the smooth muscle cells. Such cases have been described by Goebel and Hintze and must not be confused with true hemochromatosis. This pigment does not contain iron, whereas in hemochromatosis the iron-containing pigment is the most striking and characteristic feature of the disease.

Opie states that the important features of hemochromatosis are: 1. The presence in the epithelial cells of various glands, notably the liver and pancreas, of an iron-containing pigment. 2. The presence of an iron-free pigment in smooth muscle cells of the gastro-intestinal tract and of the blood vessels and lymph vessels and in certain connective tissue cells. 3. The association of cirrhosis of the liver with the pigmentation. He says that to this condition, which is apparently a distinct pathologic entity, the term hemochromatosis should be limited, even though von Recklinghausen, its originator, applied it to conditions of local pigmentation as well.

In this disease the questions which are of most interest to us are: 1, the cirrhosis of the liver and its etiology; 2, its relation to the diabète bronzé of the French. Without going into detail, it may be stated that the deposition of the pigment in the liver is now universally regarded as the exciting cause of the liver changes. This deposition leads to a degeneration and destruction of the liver cells with the eventual setting up of an interstitial hepatitis.

The relation of hemochromatosis to diabète bronzé is very close and the general opinion of the most recent observers is in favor of their being identical. According to this view, the cirrhosis is merely a question of the duration of the disease. A considerable percentage of the reported cases of hemochromatosis have developed diabetes in the late stages of the disease, at once suggesting an analogy between the two conditions. Diabetes was present in 1 of von Recklinghausen's 12 cases. It will be remembered that a small group of French writers regard the diabetes the result rather than the cause of the disease, and that the essential etiologic factor is a primary disease of the blood. This group of observers hold that the diabetes only occurs when the chronic interstitial pancreatitis, resulting from the pigment deposition, reaches a certain grade. Those who have published cases of hemochromatosis with diabetic symptoms ascribe the latter to the same cause.

Buss and Opie have reported cases which seem to bridge over the gap between the two conditions. The former reported a case of diabetes associated with cirrhosis of the liver and of the pancreas and with general hemochromatosis. He found the iron-containing and the iron-free pigment in locations corresponding with those mentioned by von Recklinghausen. There is no reason to doubt that in this case the pigmentation was identical with that of hemochromatosis, while it also presents the clinical and pathologic picture to which Hanot gave the name diabète bronzé. In Opie's case, associated with hemochromatosis, there was bronzing of the skin, cirrhosis of the liver of advanced grade, and chronic interstitial pancreatitis, but diabetes was not present. Opie states, "It is evident, then, that the generalized pigmentation of bronzed diabetes is the hemochromatosis of von Recklinghausen." It will be of great interest if the pancreas in those cases associated with diabetes will be found to show the hyaline degeneration and sclerosis of the islands of Langerhans which Opie[9] has recently demonstrated in chronic interstitial pancreatitis with glycosuria and in a case of ordinary diabetes.

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While Opie and others regard hemochromatosis as a distinct morbid entity, Adami and Dr. Maude Abbott[10] are not fully convinced that it is a distinct and separate disease.

Whatever the final decision as to the relationship between hemochromatosis and diabète bronzé many turn out to be, it is sufficient to say that practically all cases of cirrhosis of the liver with diffuse pigmentation of the tissues conform to one or the other of these two conditions. The cirrhosis found with pigmentation is practically always of the hypertrophic type. The liver is always firm, easily palpable and frequently the enlargement seems to involve the left lobe to a greater degree than the right. There is usually a firm, enlarged, palpable spleen associated with the cirrhosis.

Our present knowledge concerning hemochromatosis may be best stated by quoting the conclusions of Opie, which were drawn two years ago:

"1. There exists a distinct morbid entity, hemochromatosis, characterized by the widespread deposition of an iron-containing pigment in certain cells, and an associated formation of iron-free pigments in a variety of localities in which pigment is found in moderate amount under physiologic conditions.

"2. With the pigment accumulation there is degeneration and death of the containing cells and consequent interstitial inflammation, notably of the liver and pancreas, which become the seat of inflammatory changes accompanied by hypertrophy of the organ.

"3. When chronic interstitial pancreatitis has reached a certain grade of intensity, diabetes ensues and is the terminal event in the disease."

So far as I am aware, only four cases of cirrhosis of the liver with general pigmentation, or, in other words, hemochromatosis, have been reported from this country. The first was Opie's case, reported before the meeting of the Association of American Physicians in May, 1899. At the same meeting Adami, in discussion, spoke of a case to which he had referred in an article in the "Annual and Cyclopedia of Practical Medicine" for 1898, and which was later, in 1900, reported in full by Dr. Maude E. Abbott. The other two cases were reported by Osler,[11] in 1899.

Dr. Abbott's case is of especial interest, in that it is the first case of hemochromatosis that has been reported in a female. It is also of interest that none of the American cases have had glycosuria.

I shall refer briefly to Case 1 reported by Osler, as I have frequently seen the patient personally and he is still under observation. The patient is now 50 years of age and a pilot by occupation. There is nothing in his family or personal history of direct bearing on his present illness. He had used alcohol very moderately. Five years previous to the present date he had his first attack of purpura over the feet. Since that date he has had scores of these outbreaks of red blotches over the feet and legs, and recently the purpura has extended to involve the thighs. There was some swelling of the feet associated with some of these attacks. In February and October, 1897, he had severe attacks of pain between the right costal margin and iliac crest. For some time before he entered the Johns Hopkins Hospital, on May 1, 1899, the patient's friends had noticed that his face had become much darker in color and the patient himself observed that his hands were becoming darker. On examination, in May, 1899, he was a sparely built, healthy-looking man. The skin of his face was slightly bronzed. The general surface of the skin was moderately pigmented. The areolæ of the nipples and the genitalia were very much pigmented. The skin of the hands and wrists, and of the legs as high as the knees was very deeply bronzed. The liver was markedly enlarged; the edge could be distinctly felt in the median line 8 cm. below the ensiform cartilage and between 6 and 7 cm. below costal margin in the mammillary line. The surface was everywhere smooth and it was hard, firm and rounded. There was an audible friction rub over the liver on deep inspiration. The spleen was enormously enlarged, was distinctly visible and its border was palpable 6 cm. from the costal margin. The urine contained no albumin. Indican was present. The reaction for iron was also present. No sugar was found on repeated examination. Seventy-five grams of glucose were given on an empty stomach without sugar appearing in the urine. A portion of the skin of the leg was excised and Opie found the characteristic iron-containing, ochre-colored pigment granules in the cells of the sweat glands, practically demonstrating the fact that the case is one of hemochromatosis.

The patient has repeatedly returned for observation, and was examined by Dr. Osler on May 30, 1901. The same general features are still present. The bronzing of the skin had become intensified. The liver and spleen were enormously enlarged and he then had a purpuric eruption over the legs. He had been quite ill for one month and was decidedly weaker and thinner. The urine was still free from sugar. It would thus seem that if he has changes in the pancreas, of which there is little doubt, they are not sufficiently advanced to produce diabetes.

This case illustrates the long duration of the disease, which is so common in these cases. The recurring hemorrhages are of interest. This is a common symptom of the true hypertrophic cirrhosis of Hanot. Evidences of a hemorrhagic diathesis have been noted in 5 of the 24 cases of diabète bronzé collected by Anschütz. In 3 cases a moderate grade of purpura had been noted. In 1 case hematuria occurred and in 1 repeated attacks of epistaxis.

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CIRCULATORY DISTURBANCES ACCOMPANYING HEPATIC CIRRHOSIS

AND INOSCULATION OF THE PORTAL BRANCHES WITH THE SYSTEMIC VEINS.*

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In typical atrophic cirrhosis of the liver—the cirrhosis of Laennec—the most striking clinical features

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are those related to the disturbances in circulation. The obstructed portal radicals and consequent distension of the portal vein, the raising of the blood pressure in the portal vessels, the resulting congestion of the abdominal viscera, and the development of ascites are familiar manifestations. In a paper, read before this Section at the Newport meeting, in 1889, I ventured to express some views connected with this subject, which did not meet with the approval they seemed to me to deserve, and I, therefore, purpose reviving these views on this occasion.

RELATION OF PORTAL TO GENERAL CIRCULATION.

When one considers the anatomy and physiology of the portal system of veins, it is apparent that nature seeks to prevent the entrance of portal blood into the general circulation, except by passage through the liver. The inosculations of the portal with the systemic veins are normally few and small, yet these inosculations always exist, and, in some healthy individuals, are numerous and comparatively large. In my former article[1] this matter was discussed at length. Since then the subject has been fully presented by F. Tischer, San Francisco,[2] who reproduced a diagram from Henlde's "Anatomy," showing the anastomosis of the portal vein with the superior vena cava, the inferior vena cava, and the azygos veins. Admitting that such inosculations exist, the question arises, why does not the portal blood pass directly into the general circulation? As a matter of course such passage of the portal blood would occur, provided the blood pressure of the portal was higher than that of the systemic veins, a state of affairs that undoubtedly sometimes occurs in disease; but normally this does not take place, because the portal blood pressure is lower than that of the other veins of the body.

So far as I know, Lauder Brunton[3] was the first to show the low blood pressure of the portal veins. His conclusions were confirmed by the experiments of Prof. Julius Pohlman, Buffalo, who demonstrated that in dogs, both while fasting and feeding, there was much lower pressure of the portal than of the systemic veins. The pressure was increased by feeding, but it never rose to a point equal to the general venous pressure. It is thus apparent that under ordinary conditions, even when the inosculations are numerous, the portal blood fails to contaminate the general circulation.

ATROPHIC CIRRHOSIS.

In atrophic cirrhosis of the liver the situation changes, and we find a high portal blood pressure, higher even than that in the systemic veins. If proof of this statement is needed, it may be found in the visceral congestion that attends the disease; further, in the dilatation of the portal veins, and, finally, in the increase in number and caliber of the inosculating vessels. In some cases of cirrhosis of the liver the intercommunications are so complete that the visceral congestion and ascites do not develop; or, having developed, they gradually subside. Meantime we have evidence of marked dilatation of those veins that are known to carry on a collateral portal circulation. Clinically, we recognize the dilated para-umbilical vein, the hemorrhoidal vein, and the esophageal vein, besides the new vessels in the adhesions that are often found between the liver or omentum and the abdominal walls. These vessels are seen dilated even in cases in which ascites and visceral congestion continue; but all of us have observed instances where there was marked evidence of this collateral circulation and where ascites has never occurred, although post-mortem, the liver is found to be in a state of advanced cirrhosis. I have had the opportunity of following a number of these cases to autopsy; in several instances death took place through perforation of a dilated esophageal vein, leading to fatal gastrorrhagia. In some of these cases there was preceding toxemia worthy of more extensive consideration than I can present in this discussion. It is interesting to note that nearly all cases of fatal gastrorrhagia depending upon hepatic cirrhosis, that have come under my observation, have been exempt from ascites, or, if ascites were present, it was only as a terminal event. While this is not a universal rule, I find that, as to the frequency of this relation, the experience of others confirms my own. In other words, in those cases going to gastric hemorrhage, there is likely to be marked dilatation of the esophageal vein, and although such dilatation exists, the blood pressure in the portal vein and its branches continues so high as to endanger the thin vessel walls. It is generally admitted that many cases of cirrhosis of the liver escape ascites throughout their course, a fact which can be explained in no other way than by the establishment of free inosculations.

I have had the opportunity of studying for years several victims of toxemia, who never have had ascites, but in whom the liver is found, by all means of physical examinations, to be extremely small. One instance is that of a professional friend, Dr. P., in whom the liver can not be discovered by palpation and scarcely by percussion. More than ten years ago he was told by the late Dr. Loomis that he had cirrhosis of the liver, and such is my own diagnosis. This man is able to escape symptoms of toxemia only by resorting to light diet, consisting chiefly of milk and vegetables, and by taking every morning Friedrichschall water. If he indulges in proteids, especially shell fish, cheese or game, or takes any food in excess, he suffers, not from symptoms of indigestion, but from hebetude, dizziness, and disturbances of the urine that indicate toxemia. This man is 55 years old, and his condition has not apparently changed during the past ten years.

A similar case was that of J. C. L., a country attorney, aged 38. He had a history of typhoid fever when 23, but in other respects had been well, save that for the past ten years he had suffered from dizziness, disturbance of appetite, heavily-coated tongue, and great languor and depression. These symptoms had been more or less constant for several years when he visited me, in 1897. The physical examination showed that his liver could not be palpated; the liver dulness extended from the sixth to the eighth rib; over the liver could be heard, on auscultation, a distinct bruit, systolic in time. The patient was instructed to exclude certain articles of diet and was given Friedrichschall water. In fact he was treated much after the method adopted for my friend, Dr. P., and with similar results. The man has consulted me again within the last month, and he states that he is perfectly free from symptoms so long as he conforms to the directions, but that if he eats ordinary foods, especially those containing proteids that have undergone some decomposition, he immediately suffers, sometimes seriously, from the old symptoms. The history of this improvement under treatment extends over three and a half years.

Another very interesting case, seen with Dr. A. L. Benedict, was that of a man past middle age, a school teacher, who had always lived most carefully, but never-

theless suffered constantly from biliousness. He was compelled to keep to a light diet and to care for his digestive tract most carefully. A clinical diagnosis of contracted liver had been made several years before, although he had never had ascites. There had been no special change in his general condition when gastrorrhagia developed and proved fatal within a few days. The postmortem—the record of which I have mislaid—revealed a classic atrophic cirrhosis, with the portal vein greatly dilated, as were the vena azygos and the esophageal vein, from which latter vessel, through a "pin-hole" opening, the hemorrhage occurred.

In all of the above cases the men were very temperate. Another case, in which ascites occurred as a terminal event, was that of Mr. G., a railway engineer, seen in consultation with Dr. John Gray. The man had drank excessively of whisky for years. For a long time he had suffered from symptoms of indigestion and toxemia, which were usually attributed to alcohol. He had a muddy skin, distended capillaries, especially those around the abdominal region; his eyes were bloodshot, he was fat, and without much muscular strength. He attended to his duties as a railway engineer until a month before his death. Soon after stopping work he developed anasarca. Two weeks before death there was ascites, which required tapping; he died somewhat suddenly as the result of profuse gastrorrhagia.

Postmortem, made by Dr. F. G. Moehlau, showed the lungs much pigmented, emphysematous, free from adhesions, somewhat edematous at the posterior portions of the base. The heart was of moderate size, there was no pericardial effusion. There were red-stained vegetations on the tricuspid leaflets; there were also some thickened nodules along the margin of the mitral valves. All the valves were competent; the heart cavities were empty. The liver was light-yellow in color, universally hobnailed and cut with great resistance; the weight of the organ was about four pounds. The portal veins were dilated, but free from thrombi. The esophageal veins were tortuous and dilated, and apparently had for a long time carried on a considerable part of the collateral circulation. The azygos veins were not examined. The stomach contained several ounces of dark, fluid blood; its mucous membrane was highly congested and pigmented. The kidneys were macroscopically in good condition.

A similar case, seen in consultation with Dr. De Lancey Rochester, was that of J. C., aged 59, a business man, who had long been an alcoholic. He had complained of indigestion, bilious attacks, lassitude, and general muscular weakness. He was found to have an extremely small liver. He was under medical treatment at intervals for several years. Shortly before his death he developed ascites, and was tapped several times during the last weeks of his life. He died as the result of gastrorrhagia.

Postmortem made by Dr. H. U. Williams, eighteen hours after death, showed rigor mortis marked, moderate emaciation. On opening the abdomen, the omentum was found adherent to the anterior abdominal wall; liver adherent to abdominal wall, above and in front; liver at sixth rib on the right; pleural cavity free, and contained about two ounces of fluid; pericardium contained three drams of fluid. The lungs crepitated well and showed some edema, otherwise not important. The heart was large, pale, supercardial fat was found normal, wall of right ventricle thin; valves normal; moderate sclerosis of coronary arteries and aorta. Spleen was large, capsule thickened, on section not remarkable. Kidneys and bladder not remarkable.

The liver was deformed by the adhesions mentioned; the adhesions were marked in the neighborhood of the common bile duct. The gall-bladder contained one ounce of greenish bile; no calculi. The liver was very friable: on section it was shown to be cirrhotic and fatty. The pancreas was small, pale, fatty. The veins at the lower end of the esophagus were markedly dilated. The mucous membrane of the stomach appeared normal, its contents contained dark, reddish streaks. The ileum contained apparently fresh blood; there was no blood in the remainder of the intestines. The source of hemorrhage could not be found.

Another case, E. B., died at the Buffalo General Hospital, aged 41; the patient had been an alcoholic and died as the result of severe and repeated gastrorrhagia.

The autopsy, made by Dr. H. U. Williams twenty-four hours after death, showed rigor mortis firm; slight lividity; abdominal cavity contained a large quantity of straw-colored fluid. The omentum was adherent to the anterior abdominal wall, and the peritoneum was greatly thickened; much fibrin was present on the abdominal surfaces of the intestines. The inner muscular tissue of the abdominal wall showed edema. Fluid was found in both pleural cavities and in the pericardial sac. The heart was small, pale with normal valves; the cavities empty; the muscle pale, firm and of the usual thickness. The aorta and coronary were normal; the bronchial tubes were coated with bloody mucus; both lungs showed edema; the veins on the pleural surface of the diaphragm in the neighborhood of the esophagus, also the veins in the lower part of the esophagus and the cardiac end of the stomach were dilated and prominent. Three inches above the stomach, on the posterior aspect of the esophagus, the mucous membrane showed reddened, denuded areas the size of a lead pencil; the esophagus and the stomach were both dilated and prominent. Efforts were made to show an anastomosis between the veins of the lower part of the esophagus with the gastric veins, but these were only partially successful. The esophagus, stomach and intestines all contained blood. The liver weighed 3 pounds, 3 ounces, was coarsely lobulated and its capsule very thick. On section, the parenchyma was lobulated, and traversed by bands of fibrous tissue. The parenchyma was pale, soft, and in some places bile stained. The spleen weighed 14 ounces, with greatly thickened capsule; other organs were not remarkable. The hemorrhage was believed to have sprung from the denuded areas in the esophagus.

Another case was that of F. W. T., aged 59; a business man of high standing and strictly temperate habits. He had cholera in 1852, but otherwise had escaped sickness until six months before, when he suffered from pulmonary congestion secondary to dilatation of the heart. He had sclerosed arteries, pulmonary emphysema, an extremely small liver and a large spleen. He reported that for many years his appetite had been very slight and he had felt better when he ate sparingly. Of late his appetite further declined, and he showed evidence of marked toxemia, which was partly owing to poor elimination. The bowels were irregular, skin muddy and loaded, and the urine showed traces of albumin, containing 18.30 grams of urea in twenty-four hours and cylindroids. The man was benefited by taking Friedrichschall water, vapor baths, and a course of medical gymnastics. He was found on the floor of his bathroom in syncope, having vomited a large amount of blood. The hemorrhages were repeated during the next forty-eight hours, when he died. A rather remarkable coincidence in this case

was that the hemorrhage had been predicted, because of the marked evidence of cirrhosis, the dilatation of the superficial abdominal veins, the absence of ascites, and the presence of the toxemia. It was believed that the inosculating vessels must be much dilated, and judging from the condition of the arteries, it was assumed that the veins were becoming weak. No autopsy was permitted. Here was another case of marked cirrhosis terminating in fatal gastrorrhagia in which ascites never appeared.

It is not uncommon, as I have stated, to find cases of cirrhosis without ascites dying from various affections. In these cases it will be quite uniformly found that the communicating veins are enlarged, or that new vessels have been formed through adhesions; but ascites may be absent even without the presence of adhesions, as the following case illustrates:

Mrs. A., Buffalo General Hospital, March 6, 1899. The patient was 65 years old; dead 36 hours; nutrition poor, lungs showed old disease; the pleural and pericardial cavities were dry; heart showed fatty infiltration and degeneration as proved by microscopic examination; marked sclerosis of the aorta and somewhat of the coronaries. The liver weighed 3 pounds, 13 ounces; the surface was yellow and granular; the lobules distinct; the veins of the stomach and duodenum were dilated; the spleen was enlarged, soft and dark. Other portions of the history are omitted.

In the absence of data in some of these cases it can not be proved that all suffered from toxemia, the result of inosculations; but in most of them it is so highly probable that it may be assumed.

CONCLUSIONS.

From the facts stated, I am led to conclude that the passage of the portal blood into the general circulation, without having traversed the liver, is a source of toxemia that produces definite symptoms. This view, which I propounded in 1889, was not accepted by the gentleman who did me the honor to discuss my paper, but further observation convinces me that the view is correct. We now have the opportunity for experimental proof of this explanation of toxemia in cirrhosis of the liver, in cases of epiplorrhaphy for the relief of chronic ascites, the result of hepatic cirrhosis. My attention was first called to this in a report by Mr. Rutherford Morrison,[4] in which he speaks of a "peculiar toxic condition, with sallowness and drowsiness, which sometimes followed the operation and was relieved by purgation." In other words, by lowering the portal blood pressure. In discussing this communication, Dr. Beattie stated that "Such a toxic condition was known in medicine, and cited three cases where drowsiness had gone on to complete coma, and was sometimes associated with hematuria. It commonly occurred in cases of cirrhosis without ascites, where collateral circulation had been well established by a large vein of Sappey."

Besides the cases of epiplorrhaphy reported by Morrison,[5] numerous cases have been reported both in this country and abroad. A notable contribution is that made by Packard, Philadelphia,[6] with which you are all familiar, and in which reference is made especially to the toxemia that follows operation.

Another case in point is one of twenty operated upon for deviation of the blood in the portal veins, reported by B. Schiassi.[7] The patient, a young man, had suffered from cirrhosis of the liver for ten years, with constantly recurring ascites. Since the operation he has gained twelve kilograms in weight, and at present has but a few cubic centigrams of fluid in the peritoneal cavity. During the third and fourth week after the operation intense dyspnea and profuse sweating, with slight fever, appeared after eating some raw eggs. These symptoms disappeared when the diet was restricted to carbohydrates.

S. Salaskin and J. Zuleski[8] report experiments showing that in dogs in which was allowed a communication of the portal veins with the vena cava, symptoms of ammonia and carbonic acid poisoning appeared, apparently as a result of the relative inactivity of the liver. Complete extirpation of the liver leads to increase in the general content of acid in the body, as is shown by the acid increase in the urine.

Two practical conclusions may be drawn from these data. 1. The fact, to which it would seem unnecessary to call attention but for the reason that it appears to have been somewhat overlooked, that the normal blood pressure in the portal vein is low; that when it is suddenly raised it is apt to be followed by symptoms of toxemia, and that these symptoms may be promptly relieved by purgation. 2. The important conclusion that, when the vascular changes and the raised portal blood pressure that permit the passage of the portal blood into the systemic vein are brought about gradually, the subject is better able to resist the toxemia, becoming, as it were, immunized to the offending portal blood, hence symptoms are less striking, and with proper care as to diet and purgatives may be practically overcome.

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ROENTGEN RAYS IN THE TREATMENT OF DISEASES OF THE SKIN.

A REVIEW OF RECENT LITERATURE AND A PERSONAL EXPERIENCE.*

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A little over a year ago I reviewed the literature of the use of Roentgen rays in the treatment of diseases of the skin.[1] The subject is of active interest and there have been frequent contributions to it during the last year, so that I trust I am warranted in bringing the review down to the present time and adding to this a brief account of my own experience. In general it may be said that the experience of the last year has been strongly confirmatory of previously made claims for the value of the method. Recent reports have not established new fields of usefulness for the method, but they have put us in a position to appreciate more accurately the indications for it and to form a better opinion of its value.

An analysis of clinical reports and of the reports of microscopical studies of tissues affected by *x*-rays indicates broadly that this method of treatment may be of use in the following conditions: 1, in conditions where it is desired to produce an atrophy or partial atrophy

* Read before the American Dermatological Association, May 31, 1901.

1. Journal of Cutaneous and Genito-Urinary Diseases, July, 1900.

of some of the appendages of the skin, as in hypertrichosis; 2, in mycotic diseases, such as tinea tonsurans, favus and sycosis; 3, in chronic inflammatory affections, such as indurated patches of eczema and lupus erythematosus, where the purpose is to stimulate the tissues and cause absorption of inflammatory products; 4, in certain specific affections, such as lupus and epithelioma, where the purpose is to cause the destruction of tissues of low vitality.

REMOVAL OF HAIR.

As Oudin Berthelemy and Darier have shown, the effect of *x*-rays upon the epithelial structures of the skin is to increase the vitality of the least differentiated skin elements, while the differentiated elements—hair, nails and glands—undergo retrogressive changes and atrophy. It is this effect of *x*-rays that is useful for the removal of hair. Freund was the first to suggest the use of this agent for this purpose, and he and Schiff have perhaps done more in this direction than anyone else. I had the opportunity of investigating their work during the summer of 1899 in Vienna; I found that observers, who had seen their work from the beginning, had no doubt that they were able to produce permanent alopecia by their method of using *x*-rays. Their claims in this direction are being confirmed by many other observers. One of the most interesting cases of this sort was reported by Neville Wood; in this case a profuse growth of down and large hairs was removed from the chin by the use of *x*-rays, and there was no recurrence eight months after the cessation of the treatment. Startin has reported four cases in which he has successfully used this method for the removal of superfluous hairs with results that were permanent after several months. Jutassy has reported similar cases.

My own experience in the treatment of hypertrichosis by this method now extends over about a year. I have 9 cases in which treatment began not less than four months ago; 2 of these were compelled to give up treatment before results could have been expected. In the 7 other cases partial or complete alopecia has been produced. In only 1 case has the result failed to satisfy the patient. The following 2 cases have been longest under treatment and show the most striking results:

CASE 1.—Miss A., brunette, age 22, with a profuse growth of coarse black hairs from half an inch to an inch and a half long on chin and upper lip. The growth was not less than that found on many men of the same age and was very disfiguring. After twenty-seven exposures, which were given at the rate of five or six per week, some erythema and pigmentation developed and treatment was discontinued for a month, during which time these manifestations entirely disappeared and many hairs came out. Sittings were renewed until twenty-five more were given, when erythema developed and treatment was discontinued for three weeks. During this intermission there was continuous falling of the hairs. By the end of three weeks almost all the hairs on the chin had come out and a great many on the upper lip. Sittings were renewed after three weeks and twenty-four sittings were given, when considerable erythema developed. Upon the occurrence of this third reaction all of the remaining hairs came out from the lower part of the face and only a few fine hairs were left on the upper lip. Three months after the stopping of exposures the patient came back with the recurrence of a very few hairs; these were small and not conspicuous, and after nine sittings they all fell out. The last sitting was given March 28 and up to the present there has been no recurrence. The entire improvement is remarkable; the skin is white, smooth and perfectly normal in appearance, and aside from the absence of hairs her complexion is unquestionably better than it was before treatment began.

Case 1.—Fig. 1.

Case 1.—Fig. 2.

CASE 2.—Miss B., age 26, with an abundant growth of brown, coarse hairs, the longest over an inch long, on lower part of face and upper lip, greatly disfiguring an otherwise attractive face. The course in this case was very similar to that in the preceding, except that results were produced with less difficulty, and only slight erythema was ever produced. Sixty-seven sittings in all were required to cause entire removal of the hairs, and there is no recurrence up to the present. The patient's skin is in good condition, and shows similar improvement in appearance to that observed in the first case.

These two are, with one exception, the most exaggerated cases of hypertrichosis that I have treated. In four of my cases the course has been somewhat different from that outlined above. In these, there has not been a rapid fall of hairs at one time, but they have gradually fallen out week after week until the number remaining is very few, without complete alopecia. While the results in these cases are not so striking to report, they have been equally as satisfactory to the patients. The falling of the hairs has been very like a rapidly progressing alopecia from natural causes. In two cases, sisters, the result has been attained with more difficulty, owing to the appearance of a slight dermatitis, which was very slow to disappear. In one of these cases the erythema and pigmentation lasted four months. It was, however, only slight and not sufficient to cause the patient any annoyance. During this time there was constant but gradual thinning of the hairs, so that the patient to-day, while still showing a good many lanugo hairs, has no coarse or long hairs left.

I have found that it takes a greater number of sittings to cause outfall of the hairs than Schiff and Freund and other observers report, but this may be due to the fact that I have pursued the treatment with great caution. The time required for the removal of the hairs the first time has varied, in my cases, from twenty to sixty-six sittings; the removal of recurrent hairs has required from five to fifteen sittings. According to the observations of Schiff and Freund, recurrence of a few hairs must be expected at intervals of from four weeks to several months, until a year and a half has passed; these hairs must be removed as they recur. In none of my cases has sufficient time elapsed to justify an opinion as to the permanency of the result, but in the length of time that the hairs remain away after their removal and the ease with which the recurrent hairs are removed, my experience confirms the claims of Schiff and Freund.

In no case, except the first one detailed above, has any considerable dermatitis developed. The cases usually show slight erythema or pigmentation after three or four weeks of daily sittings, and then in a few days the hairs begin to come out. If treatment is stopped at the first appearance of these symptoms the erythema rapidly disappears; the pigmentation is somewhat slower to disappear. My experience in treating hypertrichosis indicates, contrary to the statements of some observers, that with all the factors that determine the strength of the light the same individuals vary considerably in their reaction to the rays. I have been able to cause falling of the hair in some cases by as few as twenty exposures; in another case it required sixty-six exposures. In some cases erythema appears without pigmentation; in others erythema and pigmentation appear together, and in different cases the relative degree of erythema and pigmentation varies. In a recent case the course of treatment has been complicated by the early appearance of very considerable pigmentation, which has proved very slow to disappear.

In my experience the reaction of different individuals to *x*-rays is very similar to their reaction to sunlight. Skins which burn rather than tan under sunlight develop erythema rather than pigmentation under exposures to *x*-rays, and skins which tan without burning show greater pigmentation under *x*-rays. In some cases the hairs fall rapidly upon the occurrence of erythema or pigmentation; in others they come out slowly for weeks after the production of these symptoms and the stopping of treatment.

It is not to be lost sight of that atrophy of the other appendages of the skin occurs to a greater or less degree along with the atrophy of the hair follicles, and it is conceivable that this might produce an injurious effect upon the skin. In the cases which I have treated the action of the rays upon the skin has caused distinct improvement in its appearance. In all of my cases, after the disappearance of the erythema and pigmentation, the skin of the parts treated has been left smooth and soft, of good color and healthy appearance. Some of these cases have had slight acne and following exposures the acne and the commedones have disappeared. During the existence of the erythema the affected areas have shown increased sensitiveness to local irritation, particularly to exposure to cold winds, but after the disappearance of the erythema the skin has shown no lowered resistance. The increased sensitiveness to cold has disappeared and the areas treated have shown themselves to be quite as tolerant of local irritants as other parts.

ACNE.

The fact that the sebaceous and sweat glands are similarly, though to a less degree than the hair follicles, affected by the *x*-rays suggests the possibility of the use of them for the treatment of disorders of these glands, and a number of favorable reports of the treatment of acne by this method have been published. Upon theoretical grounds there is good reason to believe that this method has a field of usefulness in treating acne. There is another property of the rays, in addition to the property of causing atrophy of the appendages of the skin, that probably comes into play in treating acne, and that is the property of inhibiting the formation of pus. This property of the rays will be referred to again in considering Zechmeister's case of sycosis parasitica treated by this method. Whether the rays have any bactericidal properties or not—a point which seems still open to question—there can be no doubt as to the inhibitory influence of *x*-rays upon the formation of pus in the skin.

HYPERIDROSIS.

The effects of *x*-rays are perhaps less upon the sweat glands than upon either the hair follicles or the sebaceous glands. There seems to be, however, some theoretical ground for believing that the method may be useful in local forms of hyperidrosis. So far as I know, no one has suggested the use of the rays in these cases. I have not tried the experiment myself, but believe there is sufficient ground to warrant its trial in intractable cases of hyperidrosis, as, for example, of the axillæ or of the feet.

TINEA TONSURANS AND FAVUS.

In tinea tonsurans and favus the use of *x*-rays has been highly recommended by Schiff and Freund, who report rapid cures of these conditions by this method. I know of no reports upon the subject within the year.

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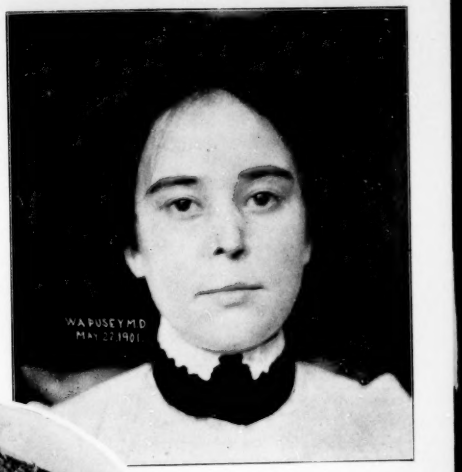
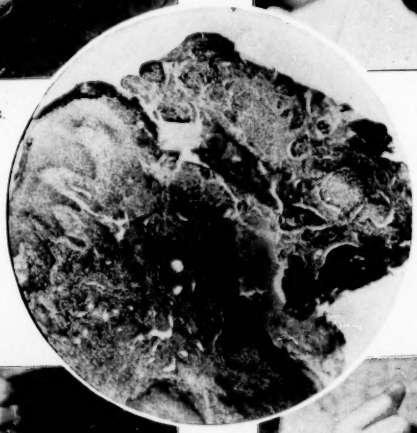
Case 2.—Fig. 3.



Case 2.—Fig. 4.



Case 4.—Fig. 5.

Case 4.—Fig. 7.

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SYCOSIS.

The use of *x*-rays in the treatment of sycosis was first suggested by Schiff and Freund. I had the opportunity of observing some of their cases in Vienna two years ago, and I believe that in cases of deep-seated parasitic sycosis there is no other method of treatment that compares with this. Other observers are confirming the results obtained by Schiff and Freund in the treatment of this disease. Gassman and Schenkel have reported, to use their own words, "an unquestionably favorable result" in a case of non-parasitic sycosis. Zechmeister has given a careful report of a successful case treated by this method. This was a case of deep-seated parasitic sycosis of two years' standing in spite of persistent treatment in which the disease disappeared entirely within a month under *x*-ray exposures. Without the use of antiseptics the pustules rapidly dried up, and the subcutaneous abscesses disappeared without incision. There can be no question that in the use of *x*-rays we have a most valuable method of treating this very intractable affection.

LUPUS ERYTHEMATOSUS.

The utilization of this method in treating chronic inflammatory affections of the skin has been confined chiefly to the treatment of eczema and lupus erythematosus. Schiff, Jutassy, and Hall Edwards have reported cases of lupus erythematosus treated by this method. Improvement and even cures are reported, but in a disease so uncertain in its course as lupus erythematosus, conclusions as to the value of any method of treatment must be very carefully drawn. The efficacy of this method in the treatment of this condition requires for its determination a much larger experience. It is recommended by theoretical considerations.

ECZEMA.

Favorable results in the treatment of eczema have been reported by a number of observers, among them, Jutassy, Holland, Mackay and Hahn and Albers-Schoenberg. Practically the same may be said of the treatment of eczema by *x*-rays as was said of the treatment of lupus erythematosus. I see no reason to change the opinion which I ventured a year ago, viz., that the cases of eczema, in which this method of treatment seems to have a field of usefulness, are those with very intractable, circumscribed patches of eczema, in which there is necessity for marked stimulation of the skin in order to get absorption of the inflammatory products.

LUPUS VULGARIS.

The reports of last year upon the treatment of lupus vulgaris with *x*-rays strongly confirm the previous claims for its value. Cases have been reported by Jutassy (1 case), Gassman and Schenkel (4 cases), Hall Edwards (2 cases), Scholefield (1 case), Knox (1 case), and 1 case by the writer. Knox's is the second case reported in the United States, the first case having been reported by Jones, San Francisco, two years ago. My first case was reported two weeks later than Knox's. There can be no question as to the accuracy of the diagnosis in all of these cases. The length of time that they have been well varies from a few weeks to two and a half years. Among Gassman and Schenkel's 4 cases, 2 cases had relapses, 1 at six, the other at seven months after stopping exposures, but that so mischievous a disease as lupus should recur in rare instances after any method of treatment is hardly surprising.

I have treated three cases of lupus vulgaris by this method. The condition of Case 1, at the beginning and at the end of treatment, is shown in the accompanying portraits (Figs. 1 and 2).[2] The last exposure given to this patient was on Jan. 12, 1901. The patient remains well at the present time with perfectly healthy scars. I will exhibit her at our clinical meeting.

CASE 2.—Girl, age 18, referred to me by Dr. A. J. Ochsner, with a diagnosis of lupus, for treatment with *x*-rays. It was a typical lupus of the nose involving tip, alæ and septum. The disease began four years ago on the tip of the nose and gradually spread to its present extent in spite of persistent treatment. The patient had been under Dr. Ochsner's treatment for two and a half months and during this time the condition had greatly improved. The photograph herewith presented (Fig. 3) shows very well the condition at the time she came under my care. The entire tip of the nose and alæ were a mass of reddish-brown, soft, friable, apple-jelly, lupous tissue. The middle half of the upper lip was covered by similar tissue, some of which was ulcerating, and scarred. The disease had also involved the mucous membrane of the nasal orifices and septum. Exposures were begun on October 1, and were given almost daily until December 20.

With the exception of a reddening, sharply confined to the lupous area, which occurred after thirty sittings, there was no change in the condition until the middle of December, when considerable redness developed in the lupous tissue and slight redness in the surrounding healthy part which had been exposed. As the lesions had proven quite intractable, exposures were continued until ten more were given. On December 20, after sixty-four exposures, treatment was stopped on account of dermatitis and tenderness of the exposed surfaces; on December 28, without further exposures, a not very tense bulla, the size of a thumb-nail, developed on the tip of the nose, where the effect of the light had been greatest. This was accompanied by tenderness and slight pain. Within a week most of the dermatitis subsided, the bulla ruptured, and at its site there showed a very superficial ulceration. This bled easily, was quite painless after a few days, and was covered with a superficial necrotic membrane. Its borders rapidly contracted, and on January 20 it had entirely healed. With the healing of this surface almost all traces of lupus disappeared. There was left only a small suspicious area, the size of a little finger-nail, on the right ala; to remove this, exposures were given, at from one to two day intervals, during February and March. After thirty sittings this spot on the ala of the nose became red and swollen, and these manifestations were quickly followed by a very remarkable softening of the lesion, so that it felt as soft as a flaccid bulla, without, however, any suspicion of a separation of the epidermis occurring. This redness and softening was quickly followed by the disappearance of the last suspicious area. From the beginning of treatment up to the time of the disappearance of the last lesion, March 16, 1901, she had ninety-five sittings, extending over a period of six months. Since the disappearance of the last lesion she has had irregular exposures simply as a precaution. She has been for two months free from any evidence of the disease. The condition at present is shown in the accompanying photograph (Fig. 4), and I will exhibit the patient at our clinical meeting.

The results, from a cosmetic standpoint, is, I believe, as perfect as can possibly be expected. There is some diminution in the size of the nose, but aside from this there is no deformity. There is entire absence of scarring in all of the areas treated by this method; the only scars are those on the upper lip resulting from ulcers which healed before this treatment was begun. The skin is soft, pliable and natural in appearance. I do not believe that as good a result as this is possible under any other method of treatment, except Finsen's. The only local treatment that this patient had was boric acid vaselin applied to the tip of the nose during the time it was inflamed by *x*-rays. She had no internal treatment whatever.

CASE 3.—Woman, age 41; occupation, trained nurse, with lupus of the face of twenty-five years' duration. This is a very extensive lupus, which has had vigorous treatment for many years. Two and a half years ago, an attempt was made at extirpation of the disease surgically, with restoration of

2. This case was reported in THE JOURNAL A. M. A., Dec. 8, 1900, and the reader is referred thereto for a full history of the case.

the face by plastic operations. The disease promptly recurred. This patient has been under my care for six months. The transplanted tissue has proven very irritable to *x*-rays, so that it has been impossible to give her vigorous treatment.

There is considerable improvement in the condition, but the disease is by no means cured, and I present the case only that my report may be complete.

CARCINOMA.

The most interesting development of the last year in the use of *x*-rays has been in the treatment of cutaneous carcinoma. There are reports of favorable results previously, but the accumulation of evidence in favor of the treatment by *x*-rays has taken place within the last year. Cases have been reported by Stenbeck (1 case), Johnson and Merrill (6 cases), Sequeira, London Hospital (12 cases), Smith (1 case). In practically all of these cases the diagnosis is beyond question. In most of them confirmatory, histological diagnosis was made. The results are not in all cases cures, but in all cases there is unmistakable evidence of the beneficial influence of the rays. Stenbeck's case is a cure of a rodent ulcer of the nose. Everett Smith's case is similar. Of Johnson and Merrill's cases, three epitheliomas of the nose are entirely cured, as far as can be determined in the time that has elapsed. One epithelioma was not entirely cured, but showed great improvement. One recurrent carcinoma of the breast had, after four weeks, shown an improvement in the patient's health and disappearance of pain. One case stopped treatment after a very few exposures. Of Sequeira's twelve cases, three cases were apparently cured; these cases have been demonstrated before the London Dermatological Society. The other nine cases were still under treatment and showed more or less improvement, according to the length of time treated. Williams, Boston, has reported favorable results in epitheliomas treated by this method, including a report of one case which is apparently cured.

I have treated one epithelioma by this method:

CASE 4.—Mrs. C., age 68, with the following history, most of which is taken from the records of St. Luke's Hospital. About twenty years ago a wart appeared in the right supraclavicular space and gradually increased in size. Three years after its appearance the surface broke down and an ulcer developed, which, after two years' duration, was excised by a well-known Chicago surgeon.

The disease recurred in the upper angle of the scar and enlarged until 1894, when she came to St. Luke's Hospital. It was then the most extensive epithelioma I have ever seen, covering almost the entire upper third of the back, and extending over the right shoulder to the clavicle. I fortunately photographed her at that time.

During 1894-5 she was in St. Luke's Hospital, in the services of Drs. John E. Owen and L. L. McArthur, where vigorous attempts were made to extirpate the diseased tissue. A large part of the tumor was destroyed and extensive grafts were made, so that the diseased area over the back was converted into scar tissue, which has remained healthy until the present. The area over the right shoulder, from the spine of the scapula behind, to a point below the clavicle in front, an area covering the entire upper surface of the shoulder, was not cured.

From that time until this winter she has been more or less constantly an out-patient at St. Luke's and for two years past it has not been thought feasible to make any further attempt at extirpation of the growth. The extent of the growth, at the time she presented herself for treatment with *x*-rays, is shown in the photograph (Fig. 5) presented herewith. As shown in the photograph, the disease involved the greater part of the area over the right shoulder. The largest lesion was situated at the juncture of the neck and shoulder, and consisted of three confluent ulcers, forming in all an ulcer with a diameter of about three inches. This was a typical epitheliomatous ulcer with elevated, rolled, hard, pearly borders. In addition, there were perhaps twenty other epitheliomatous ulcers, varying in size from a finger-nail to a small pea, located around and posterior to the large ulcer. Extending down over the front of the shoulder was a triangular space with the apex below the clavicle, which contained numerous small epitheliomas. Some of these were ulcerating, but most of them were intact nodules.

All of the tissue of the affected area was inflamed and indurated. There was no evidence of involvement of contiguous glands or of the underlying tissue. There was free discharge from the ulcers and for many years the patient had suffered severe pain. Tissue for examination was excised from the border of the large ulcer and sections of this are presented to-day. [Only one illustration is given here, namely, Fig. 6, the central photomicrograph of the insert.] The tissue presents the typical histological picture of superficial epithelioma (Fig. 6). The tissue has also been examined for blastomycetes, which were absent.

Through the courtesy of Dr. Porter, who was an interne at St. Luke's during her residence there, I am able to show a section that was made seven years ago. This section also shows characteristic epithelioma.

The patient was put under exposures to *x*-rays on Jan. 15, 1901, and had almost daily sittings until February 14, eighteen in all. Within a week the discharge from the ulcers almost entirely ceased, and the patient volunteered the statement that her shoulder was free from pain and that she was able to sleep comfortably for the first time in many years. Since this first week there has been practically no discharge from the ulcers, and almost no recurrence of pain. The disappearance of the discharge was the more interesting because before the patient came under treatment with *x*-rays she had been a regular attendant at St. Luke's Hospital out-patient department, where her shoulder had been dressed as often as necessary.

On February 4 the ulcers were decreasing rapidly in size, and, what was more significant, the rolled edges were shrinking. On that date, the patient was hurt by a fall and was not able to appear for further exposures until March 13. In the interval she was in the Charity Hospital, where, at my request, the physicians kindly saw that no change in the local treatment was made from my application of boric acid vaselin.

She returned for treatment on March 13, and from March 13 to May 4 she had twenty sittings, varying from daily sittings to sittings at intervals of from four to five days. By April 5, the evidences of epithelioma were limited to a small ulcer not larger than a little finger-nail at the site of the previous large ulcer, and to two rows of very characteristic nodules in the supraclavicular space.

Up to this time the exposures had always been made so that the greatest intensity of light fell on the shoulder, and the lesions over the clavicle, therefore, had received less of the rays. After April 5 the upper surface of the shoulder, which had been getting exposures of fifteen minutes, was given exposures of five minutes, and the lesions over the clavicle were given direct exposure of fifteen minutes. Within five days after beginning these exposures over the nodules in the supraclavicular space a very remarkable change was noticed in them. They began to shrink and to disappear rapidly.

By April 16, that is, after ten direct exposures of fifteen minutes each, these nodules had entirely disappeared. They were absorbed and disappeared, leaving no trace of their existence, without dermatitis or any breaking-down occurring. Sittings were discontinued on April 16, as the shoulder showed slight dermatitis.

By April 29 this irritation had entirely disappeared. Between April 29 and May 8 the small ulcer on the upper surface of the shoulder, the last trace of epithelioma, entirely healed. Her condition at present, and since May 6, is shown by the photograph (Fig. 7).[3]

I particularly call attention to the character of the scars. They are called scars for lack of a better term, but there is hardly any evidence of scar tissue. The skin is smooth and soft without contractures and shows practically no trace of the previous ulcers. Whether this case is a cure or not time can only determine. There is no evidence of epithelioma remaining and, as far as can be told in the length of time that has elapsed, the case is cured. Regardless of the possibility

3. All the patients whose photographs are shown were presented at the clinical meeting of the American Dermatological Association. All of them remain well at present, Sept. 1.

of recurrence, I believe the result may still be called remarkable.

The only local treatment which the patient received while undergoing this treatment was the application of a cloth covered with vaselin containing one dram of boric acid to the ounce, and the occasional wiping of the surface with cotton sponges wrung out of a bichlorid solution. There has been no care exercised to keep the surface free from contamination with pus organisms and in spite of conditions most favorable to infection the ulcers remained clean and almost entirely free from discharge. The only internal medication which the patient had was compound syrup of hypophosphites during the month of April, when she was much depressed from chronic bronchitis.

I have also treated, by this method, a recurrent carcinoma of the breast. This case was only undertaken after further surgical intervention had been refused by her surgeon, a man of well-known standing. This patient remained under treatment four weeks. There was, in her opinion, a lessening of the pain and she certainly improved in her general health, but there was no perceptible effect upon the tumor, and, as the patient was compelled to be away from her family in order to have the treatment, at my suggestion, the treatment was not carried further. It seems hardly to be expected that the method should be of service in inoperable carcinomas of the breast, with their extensive metastases, nevertheless the method deserves a trial even in these desperate cases. In this connection it is not to be forgotten that Williams has reported a case of epithelioma of the lower lip, treated with *x*-rays, in which the enlarged gland, under the inferior maxilla, disappeared after the lip was healed.

Dr. T. A. Davis has suggested to me the use of *x*-ray exposures after removal of carcinomas of the breast as a means of preventing recurrence of the disease. With the facts before us as to the destructive influence of *x*-rays upon carcinomatous tissue, this ingenious suggestion is worthy of trial, not only after removal of carcinomas of the breast, but also after removal of carcinomas in other superficial locations.

In my cases I have followed the technique suggested by Schiff and Freund, and it meets all of the requirements of accuracy and safety. This technique has been described in my previous article. Of course, the application of *x*-rays, whether for the removal of hair or for other conditions, must be made with great caution. To this end it is necessary that all of the factors involved in producing the light be definite and that there be repeated exposures to a weak light, the effects of which may be controlled, rather than the use of a strong light for a few exposures. The treatment should be interrupted at the first indication of reaction. The work should not be undertaken with static machines or with the ordinary apparatus used for diagnostic purposes.

The question of the effects produced upon tissue by *x*-rays, and of the factors in the rays which produce these effects, I considered in my previous article and I shall not take time to go into a full consideration of these again. I will venture the opinion that the reasons are constantly becoming stronger for believing that the effects of *x*-rays are due to the peculiar stimulation of the tissues which they cause, and not to any strong bactericidal effects in the rays themselves. As to the active factor in the rays, I repeat, with increasing assurance, the opinion offered a year ago, that the essential factor is something in the rays themselves and not, as has been suggested, some incident of their production, like ozone, or brush discharges, or induced electrical currents in the tissues, or particles of platinum carried off from the anticathode. As Prof. Elihu Thompson expresses it, in discussing some experiments on the point, "There is only the supposition left that the effect was produced by Roentgen rays or something that comes with the rays." The lesser degrees of *x*-ray burns resemble sunburns more closely than any other pathological process, and there seems to be no good reason for not believing that the effects of *x*-rays on the tissues are due to the actinic rays of the *x*-rays, just as sunburn is due to the actinic rays of sunlight. That certain of the *x*-rays are strikingly similar in their actinic properties to the rays of light at the violet end of the spectrum is shown by their similar effect on photographic plates. And it is no violence to the reason to suppose that the same actinic properties of the *x*-rays that cause rearrangement of molecules and the formation of new salts on photographic plates can exercise a similar power on the molecular arrangement of tissue cells and influence their metabolism. I am more fully convinced than ever that the active rays among the *x*-rays are identical, or at least so similar in all of their properties as to be practically identical, with the rays at and beyond the violet end of the spectrum. If this is true this method of treatment is identical in principle with that of Finsen, and I am willing to record myself as holding the opinion that such is the case.

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CONGENITAL CYSTIC KIDNEY.*

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In accepting the opportunity kindly offered me by the Chairman of this Section to present the clinical history of a case of unilateral cystic kidney in a child of 4 months and 14 days, I am actuated by the hope that the rarity of the condition, at least as far as I am able to determine, may elicit a degree of interest which would otherwise not be merited by the report.

The salient points in the case, briefly stated, are the following: The child, Freda W., female, born July 13, was the second child of German-American parents; from the time of birth until 2 or 3 days prior to securing this history she was seemingly possessed of perfect health. November 27, Dr. Stidworthy was called to see the child on account of vomiting and constipation, no evacuation of the bowels having occurred for nearly 48 hours.

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee of the Section: Drs. H. E. Tuley, Edwin Rosenthal and Samuel W. Kelley.

On the evening of Nov. 29, 1900, I was requested by Dr. Stidworthy to see the child with him, and found her to be well nourished, presenting all the appearances of having been possessed of a normal degree of health. The rectal temperature was 101 4/5, pulse 164, respiration hurried and embarrassed. It had been vomiting some, and no movements of the bowels had occurred for nearly 4 days, despite the fact that laxatives in generous doses had been administered repeatedly. The mother thought that the diaper had been wet about as usual.

Examination of the child's abdomen showed that it was immensely, and apparently uniformly, distended, the integument tightly stretched and glistening; the umbilicus protruded and was surrounded by an area of active hyperemia, as if the structures were the seat of an infective inflammation. This area was about two inches in diameter.

Palpation revealed the presence of a circumscribed collection of liquid in the abdomen, seemingly confined mostly to the right side. Percussion showed dulness over the whole abdominal area, except in the left hypochondriac, lumbar, and inguinal regions, backwards from about midway between the mammary and axillary lines.

I was under the impression that I had to deal with an accumulation of liquid within the remains of an imperfectly occluded urachus or vitello-intestinal duct, being inclined to the former opinion. The febrile condition present, as well as the area of inflammation about the umbilicus, led me to suspect the presence of an infection from some source. It did not seem that the intra-abdominal tension was sufficient to cause the inflammation mentioned. In order to determine the character of the fluid, I removed a small quantity by aspiration, through a point about one and one-half inches below the umbilicus, in the middle line. It was found to be a liquid of a light amber color. It occurred to me that possibly the vesical end of the urachus remained patent, and that this fluid was urine. I therefore emptied the bladder by means of a grooved director, not having on hand a catheter which could be passed.

The urine, as well as the liquid removed by aspiration, were then tested for albumin. The urine was found to contain none, while the aspirated liquid nearly solidified into a starchy-looking or colloid material on boiling, with nothing to indicate that the liquid was the product of renal excretion. It was now apparent that there was present one of the following conditions: An ovarian cyst; cystic kidney; cyst of the liver or pancreas; distention cyst of the gall-bladder, or distention of lesser peritoneal cavity, through closure of foramen of Winslow.

It was impossible to determine what intra-abdominal structure was giving rise to the cyst, yet I inclined to the belief that it had its origin from the kidney or ovary. The child's condition being precarious, and relief being necessary, it was decided to do a celiotomy and remove the cyst, if possible. Accordingly, the child was taken to the St. Joseph Mercy Hospital the following day, when, under chloroform anesthesia, the above views were carried out. The primary incision through the abdominal parieties was about one and one-half inches in length, and in the middle line, the upper end of the wound being about half an inch below the umbilicus. It was subsequently extended upward for nearly another inch. The primary opening in the abdominal parieties exposed the cyst wall, which was found to be adherent to the abdominal wall over an area of probably three or four inches in diameter about the umbilicus and to the right of it. This adhesion was separated, however, without much difficulty, but the cyst filled the abdominal cavity so thoroughly that its origin could not be determined.

The cyst was now opened between the grasp of two pair of hemostat forceps and partially emptied of its contents. Exploration of its surroundings showed its origin to be from the upper part of the abdominal cavity on the right side, and my diagnosis was that of a cystic kidney. The uterus and ovaries could be felt in their normal position. I re-introduced my finger into the sac to determine its exact point of attachment. The expanded portion of the kidney structure proper was found to lie under the liver, and its margins came so far forward that it quite covered the liver; I was, for a moment, in doubt as to the correctness of my diagnosis, fearing that I might be dealing with a cyst of the liver or a distended gall-bladder, and it was only after I had sought the liver and determined its normality that I was satisfied.

Thus, even after the abdomen was opened, the diagnosis of a cystic kidney was only problematic, and it was only after the other structures, from which the cyst might have arisen, were examined and found to be normal that the diagnosis could be verified.

As a detailed description of the steps in the operation are probably of little interest we will omit them, only stating that the time of the operation was fourteen minutes and that the child made a rapid recovery without any untoward symptoms and has since seemingly been enjoying the best of health.

Medical literature acquaints us with the fact that prenatal development of cystic kidney, while rare, is not an unknown condition. It at times reaches a degree of development which precludes a normal birth, evisceration having in some instances been found necessary before delivery could be accomplished. A large per cent. of children who survive birth are presumed to succumb early to the effects of pressure, as in the embarrassment of respiration induced by the limitation of diaphragmatic movement, or in the disturbance of the functions of the intra-abdominal viscera; while toxemia, resulting from inadequate renal function, is another potent factor in the early demise of these patients.

In cases where the size of the affected organ or organs, or the limitation of functionable renal structure is not extreme, the condition may not be incompatible with life, and it is believed that a small per cent. of such patients may reach adult years, or even old age. That is, providing that the condition remains latent and no intercurrent malady leads to an overworking of the remaining renal parenchyma.

It would appear that, while congenital cystic kidney may involve one organ, yet it is found to involve both organs in most instances, and associated with the condition there not infrequently may exist other malformations, namely, a horseshoe kidney or abnormally placed kidneys, or kidneys without pelves or ureters—hydrocephalus and hydrencephalus also existing. Cysts of the liver at times may co-exist. Instances are recorded of a mother having successively or interruptedly given birth to several children with cystic kidney.

Cystic kidney has had its cause ascribed to various factors by different investigators. Dr. Hektoen[1] concludes, after an exhaustive study of the subject, that the theories divide themselves into the following three sets: 1, retention; 2, cyst-adenomatous, and 3, teratological.

1. Chicago Med. Record, September, 1892.

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1. The theory of retention and dilatation, resulting in the formation of cysts, is based upon the study of a number of cases of cystic kidney in the old as well as in the newborn, in which there were actually demonstrated various causes of obstruction in the uriniferous tubules at the papillæ or elsewhere in their course. Mere mention of the various possible modes of obstruction suggested, but not demonstrated, will be enough; occlusion by the impaction of fibrinous casts, desquamated epithelium, blood, precipitated salts, etc. Virchow assumes a papillary atresia, or stenosis, due to a fetal inflammation, in order to explain the congenital cystic kidney. Complete obliteration, or absence of the pelvis, is mentioned by Thorn, Sutton, and others as capable of causing cystic kidney. Ewald, in briefly reviewing the literature on the etiology, states that many authors believe that chronic interstitial nephritis, with desquamation and impaction of epithelial cells or strangulation of the tubules by connective tissue, may cause cystic kidneys in some cases; the peculiarities, which would determine the instances in which total cystic degeneration and not merely small cortical cysts should take place, are not described.

2. The cyst-adenomatous theory is based upon the demonstration, in cases of cystic kidney, of the appearances characteristic of adenomata. In these cases the chronic interstitial changes are usually held to be secondary, although Sabourin concludes his study as follows: "Renal cysts in cirrhosis develop from tubules whose epithelium is reduced to an indifferent state; by fusion, cysts are formed, which merit the name of adenoma." Hommey, Lejars, Cornil et Brault, Brigidi, Sevin and Phillipson adopt the same view.

3. Theoretically, the kidney should be the organ of all others able to furnish instances of the teratoid origin of tumors from persistent embryonic rudiments, but few renal growths have been regarded from this point of view. S. G. Shattock concludes that the congenital cystic kidney is formed by a combination of the meso- and meta-nephros, the remnants of the Wolffian body developing into cysts scattered through the proper renal tissue; the tension upon the intertubular tissue by the enlarging cysts might cause the interstitial changes; the presence of urinary constituents in the cysts does not mean, according to Shattock, that they originate from the kidney proper, because the meso-nephros in the fishes and the amphibia perform the function of the permanent mammalian kidney. Bland Sutton adopts and advances this view enthusiastically. He says that the microscopical appearances of a congenital cystic kidney and of the meso-nephros at its fullest development, the sixth week, agree completely.

Dr. Hektoen's own conclusions are:

1. The common cystic kidney in the old is best explained as due to retention caused by a chronic interstitial inflammation of the pyramids, and the medullary rays especially, as well as of the labyrinthine structure of the cortex. The epithelial lining of the cysts is entirely passive and often absent. There is no epithelial proliferation and new cysts formation demonstrable. A congenital or adenomatous origin for the cysts can only be inferred and not demonstrated. The etiology of the chronic inflammation is obscure in many cases; in others it may be referred to an ascending pyelopapillitis from calculi or to the same causes that produce the ordinary chronic interstitial nephritis.

2. Cystic kidneys, presenting a proliferating epithelial lining, with evidences of new cyst formation by budding from the old cysts or from uriniferous tubules, are plainly instances of renal cyst-adenomata.

Reasoning by analogy from other organs in the body, occasionally the seat of cystic adenomata, it would be expected that this variety of cystic kidney would most frequently be unilateral.

3. Congenital cystic kidney, without any demonstrable cause for obstruction and urinary retention in the tubules and presenting the structure characteristic of the meso-nephros, as described by Shattock and Sutton, is most reasonably to be regarded as coming from misplaced meso-nephrotic remnants. To look upon all cystic kidneys as congenital cannot be considered proper in view of the instances cited of cysts developing directly as the result of compression of the tubules and the papillæ by fibrous tissue, and cystic adenoma of the kidney can occur at any time of life.

The etiology of the case which I have presented is in doubt, I having been unable to fix upon any definite factor for its production. However, I am of the opinion that its cause must have been an occluded ureter, or even an absence of it, for I have not been able to find it. If a ureter did exist and was subsequently occluded the cause and whether this condition developed prenatal or postnatal must remain an open question.

The points of interest which are presented by this case are the following:

1. It involved only one kidney, and the fact that it developed to such a degree without leading to serious disturbances till occasioned by its encroachment upon the gastro-intestinal tract, through pressure, was of interest. However, involvement of one kidney can not be considered remarkable if my conception of its production be correct, namely, an occlusion or absence of its ureter; for then it would be likely to involve but one kidney, and with one normal kidney the excretory functions of those structures were no doubt properly carried on by the healthy one, thus leaving the child's general condition normal, except for the disturbances from the pressure.

2. The difficulties in the way of arriving at anything but a problematic diagnosis prior to direct inspection of the growth, it seems to me, are quite insurmountable; and even inspection of the growth does not lead to a positive diagnosis, till all structures from which a more or less similar condition might arise are examined as to their normality, and a diagnosis being thus arrived at by exclusion. An organ thus distended no longer possesses any recognizable characteristics of its former self.

3. The case is further illustrative of the capability of children to endure what may be considered capital operations, provided that precautions are exercised in reducing to a minimum the period of anesthesia and operation, as well as the loss of blood. As nearly as I am able to learn from records which I have, this is the youngest child that has survived a nephrectomy. Dr. Roswell Park,[2] some years ago, having done a nephrectomy for congenital cystic kidney upon a child aged 23 months, with resulting recovery. Up to that time this was the youngest child that had recovered. Since that time Rovsing[3] has operated upon a child 9 months old for congenital hydronephrosis, with recovery.

GONORRHEA IN BOYS.*

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Of late the number of cases of gonorrhea in boys has been so large in some quarters that it has attracted more than passing notice, both as to the cause of their occurrence and to their general behavior and treatment. Within the past two years, twenty-two cases have come under my supervision, in patients ranging in age from 18 months to 12 years.

For purposes of scientific accuracy, the secretions were stained by the Gram method, and examined for

2. Surgery by Am. Authors, vol. I, p. 432.
3. International Text-Book of Surgery, vol. II, p. 596.

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee of the Section: Drs. H. E. Tuley, Edwin Rosenthal and Samuel W. Kelley.

the Neisser gonococcus, and in each case, without a question of doubt, the specific germ was found. In addition to the evidence furnished by the microscope, the clinical symptoms were carefully noted, and, when combined with the microscopic testimony, left no room for doubt as to the true nature of the infection.

It is commonly maintained that the source of infection, in the majority of juvenile cases, can be traced to the using of soiled linen, or infected water-closet seats—and to infected catheters in hospital cases. A most careful inquiry into the prevailing social conditions, however, and the histories of the cases that have come under my observation, lead to the conclusion that there are strong reasons for assuming that in children, boys as well as girls, the usual mode of infection is responsible for the disease, in more cases than we are accustomed to believe. Especially is this true in districts where the poor are crowded together in tenement houses, where the children are alive to the enjoyments of sexual gratification at an extremely early age, and where the dark cellars and water-closets and the roofs offer splendid opportunities, first for experiment, later for enjoyment.

It is not at all uncommon to learn that boys and girls, who have not yet reached the age of puberty, indulge in sexual gratification. Contact with older children, who have had their curiosity satisfied by personal experience, stimulates the sexual appetite in these children of the tenement and so-called "red-light" districts, at an age when impressions are easily made and habits contracted. The result is an excessive desire for the gratification of their precociously developed appetite, which, as can be easily shown, is not difficult to satisfy.

In my study of this subject there have been observed three cases of gonorrheal urethritis, in boys aged respectively 4, 10 and 12 years, which were acquired in the usual manner, from girls ranging between 10 and 12 years of age. In each case, according to the story told by the victim, the girl made the first advances, and in one case, that of the 4-year-old boy, the act was consummated in the form of an assault, by a girl 12 years old, in which the child was threatened with injury unless he performed his part.

In about one-half of the cases, there was no history of infection in this manner, but the cause was traced to the child sleeping in the same bed with a parent, brother or sister, who were found to be suffering from gonorrhea. Here again the cramped quarters of the tenement dwellers, with their lack of proper sleeping accommodations and their promiscuous intermingling of the sexes, may be held responsible, in a large measure, for the causation of this disease in young boys.

Then there were a number of cases that were admittedly produced by acts of pederasty. This mode of sexual gratification, among these highly stimulated children, is not at all uncommon. The roofs and water-closets of tenement houses, in the spring and summer especially, offer public exhibitions of this kind, to those who are alive to the existence of the practice.

In districts where prostitutes live in tenement houses and mingle with young children, gonorrhea may develop in boys as the result of an attempt on the part of the prostitute to rid herself of the disease by cohabiting with a male "virgin." This practice is induced by a superstition brought to this country from some parts of Europe. It promises those suffering from gonorrhea, of either sex, who cohabit with a virgin of the opposite sex, that they will thereby rid themselves of the disease.

Whatever the cause of the infection may be, the period of incubation and the general character of the disease do not differ from these manifestations in the adult. In from four to seven—sometimes ten or twelve—days after the infection, the subjective symptoms, pain and burning sensations on micturition, frequent desire to micturate, and sometimes almost complete retention, manifest themselves. A day or two later the meatus becomes red, swollen and puffy, and presents the typical "angry" appearance that constitutes an almost positive landmark in making the diagnosis of gonorrheal urethritis. The discharge is usually profuse from the beginning, not differing in appearance or consistency from that seen in the adult.

The pain which some of these children suffer is often out of all proportion to the clinical picture presented; but this hypersensitiveness is often found to be coincident with the presence of a contracted meatus or a tight prepuce, which probably acts as a dam to the secretions and by preventing proper drainage of the urethral canal, causes retention, and a consequent increase in the inflammatory products. Other children, on the other hand, suffer very little pain, and would probably not be brought to the surgeon for treatment but for the presence of the redness and swelling at the meatus, and the discharge.

Right here the importance and great value of circumcision may be pointed out. The redundant foreskin very materially interferes with the cleansing of the parts, and helps to complicate the condition of urethritis *per se*, with the additional balanitis and gland infections that are so often also found in the uncircumcised adult. Every case of gonorrheal urethritis in uncircumcised children offers a most eloquent plea for the circumcision of all male infants, when the possibility of future gonorrheal infection is considered. Both as a prophylactic measure against infection of the urethra by retained secretions within the prepuce, and as an invaluable aid in the treatment of urethritis should it appear, the operation of circumcision in infants deserves a position in the routine management of male infants after childbirth, second only to the care of the eyes and of the umbilical cord.

When the disease has lasted several days complications similar to those in the adult may appear. Posterior urethritis, and even prostatitis and epididymitis, has occurred in these cases; and in one case, that of a child 19 months old, with a very small meatus, there was an almost total inability to pass the urine, which condition was relieved only by the introduction of a fine woven catheter.

If the prostate is involved it becomes swollen and highly sensitive, causing exquisite pain when attempts are made to move the bowels. The epididymis, when involved, is also swollen and exquisitely tender to the touch.

In general, it may be said that the disease presents the same symptoms and complications as are seen in the adult, and it is interesting to note that the duration of the disease, from four to six weeks, is also about the same as in the adult.

The prognosis, as to complete recovery, seems to be better than in the adult. In young boys, there does not seem to be that tendency toward the continuance of the disease in the chronic form, and strictures are not so likely to follow as in the adult. I have never seen rheumatism develop in these cases. Recovery is complete

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and the inflammation leaves slight, if any, traces behind it.

Under the subject of treatment, the question of prophylaxis must be considered. The occurrence of gonorrhea in boys and infants would be one of the rarest of diseases, if proper care were taken by the parents and associates of these children. There is a strong element of criminality present when young children are permitted to become infected with a disease that is acquired only through actual contact with the infected discharges, and in a well-regulated society there should be a severe penalty for that criminal negligence or viciousness that results in the production of gonorrhea in children. If parents, or relatives, or playmates are suffering from the disease in any of its forms, the most stringent precautions should be taken to prevent healthy children from contamination. The physician, especially when practicing among the poor, should see to it that healthy children are not permitted to sleep in the same bed with those who are suffering from gonorrhea. He should also take care that the discharges be destroyed before infecting others, and that, immediately on the appearance of any of the symptoms of an infection, the patient be warned of the dangers that lurk in the urethral discharge, and be instructed in the measures to be taken to prevent the infection of other members of the family.

The primary requisite for the proper treatment of the disease is cleanliness, even carried up to the surgical degree. The cleansing of the parts will not only aid in bringing about a cure, but will also prevent the occurrence of some of the painful complications that would otherwise follow. If the child has been circumcised, the problem of keeping the parts clean is not a difficult one. Warm water, applied at intervals of three or four hours during the day, will keep the meatus and the surrounding tissues clean. A solution of boric acid or a weak solution of bichlorid of mercury may also be used for this purpose. If the prepuce be present, great care must be used to remove the secretions by constant cleansing with any of the above mentioned solutions. If the prepuce be a tight one and not easily drawn back over the glans, the solution may be slowly injected, by means of a small glass syringe, between the prepuce and the glans. This must be done at frequent intervals in order that the accumulated secretions may be removed. The development of phimosis will also be averted, if due attention is paid to this subject.

For the urethritis itself, the medicinal treatment will largely depend upon the extent and character of the inflammation. If the anterior portion alone of the urethra be involved, the injection of a one-half per cent. solution of protargol, three times daily, retaining it about five minutes each time, will often prove wonderfully effective in stopping the pain and removing the discharge. In three of my cases, a complete cessation of the pain and the discharge followed the second injection of this solution.

Unfortunately, however, these excellent results do not follow in every case. In spite of this treatment, or perhaps because of it, the inflammation often extends to the posterior portion of the urethra, bringing with it all the symptoms of posterior urethritis. In conditions like this, the injections into the anterior urethra are not only useless, but sometimes positively harmful. Irrigation of the urethral tract, with a mild solution of potassium permanganate (1-6000) or of the Thiersch solution, will prove of decided benefit. This is best accomplished, either by the use of the catheter with the eye in the posterior portion of the urethra, or by the small glass syringe. With the latter, the fluid can be slowly and gently injected directly into the bladder, without causing pain or irritation. When the bladder is fairly well filled, the irrigating fluid is permitted to flow out and the process repeated. The injection of weak solutions of protargol—1 to 400—into the bladder in this manner will also prove of value in some cases.

For internal administration, the pure oil of wintergreen, in doses of 5 to 10 minims, in milk or water, three times daily, will be found valuable in some cases. In others, an alkaline mixture, containing potassium bicarbonate and tincture of hyoscyamus, will bring relief from the pain and tenesmus.

When complications arise, they must receive appropriate attention. Epididymitis is best treated by the application of guaiacol ointment, 10 per cent. strength. Hot poultices also bring relief in some cases. When the prostate is inflamed and extremely painful, rectal irrigations of hot water will bring grateful relief. At night, suppositories containing a small amount of morphin and belladonna may be employed to relieve the intense pain and tenesmus. The bowels must be kept open by the use of irrigations or laxatives, and rest in bed should be enforced.

A dressing should be applied to the meatus and so applied that it can not fall off or be removed by the patient. Small sized "gonorrhea bags" may be used with excellent effect, in the prevention of further contamination. It is needless to point out the importance of preventing an infection of the eyes from the urethral discharge. In children, moreover, who can not always be made to understand, especial pains should be taken to prevent this. Strict attention to cleanliness and the use of a "gonorrhea bag" will positively guard against the occurrence of eye inflammation.

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DISCUSSION.

DR. EDWIN ROSENTHAL, Philadelphia—I have seen gonorrhea in children so very frequently. With regard to the superstition of prostitutes that they can get rid of the disease by giving it to a virgin, I would say that this prevails very widely and often accounts for attacks of rape. At one time I saw a whole troop of boys who had contracted gonorrhea in this way, and I only checked it by hunting up the guilty prostitute, one "Rachel" by name. The mode of infection was various. The proof of the crime can be easily established by microscopic examination of the discharge, both from the guilty person and the one infected. Within the last twenty years there has grown up in the larger cities a sort of system of tenement houses in which two or more families live in one room, separated perhaps only by a chalk line. I am disposed to be a little skeptical regarding the dissemination of the disease by infection from dirty water-closets.

DR. CLIFTON SCOTT, Des Moines—I do not think this is confined to the tenement houses. There is great need for widespread information among the very best classes of society. No one holds woman in higher respect than I, but it is a most pernicious doctrine which is promulgated in women's clubs, that men are naturally vicious and women are naturally pure, and that every prostitute is the victim of man's duplicity. The people at large should understand that there are vicious women as well as vicious men, who have been vicious from their youth up. I have seen a few of these cases, and I know that a number of them originate from servant girls who seduce boys left in their charge or allowed to sleep with them.

DR. A. C. COTTON, Chicago—I believe this is a subject of unusual interest to those who are family advisers. The ignorance of the laity on these subjects, which are considered a little too delicate to discuss, is quite astonishing. I have been

the city physician in Chicago for two terms of four years. One of the duties of that office is to look after the police stations, the bridewell, and, in fact, any one for whom the city assumes even temporary responsibility. In cases of rape and alleged assault the city physician is naturally the first one called in by the prosecuting attorney to see if there is any medical evidence. It is astonishing what a large number of cases of alleged assault on little girls there are. These cases rarely come to trial. I have been surprised at the large number of cases of gonorrhea among such little girls. As city physician I learned of one source of gonorrheal infection, i. e., the practice of men "playing" with the genitals of little girls, though not committing rape. This happens even in children so young that they do not know what is being done to them. I have had many cases to show that little boys go through the motions of copulating with the assistance of an older female. I recall a string of little girls coming to my clinic suffering from gonorrhea. A search of the records indicated that they all came from a certain locality, although these children represented quite a variety of nationalities. A week later my assistant brought to me a boy of 10 years who had been infecting these ten or twelve little girls.

DR. J. C. COOK, Chicago—I was very glad to hear the paper, and yet it seemed to me to be lacking in scientific knowledge; for the time has arrived when we should know whether it is possible to transmit the gonococcus from fabrics to human beings. It is trying to our credulity to find a 4-year-old daughter and a 35-year-old father having gonorrhea at the same time with no other source of infection to the daughter other than the father, and yet I have observed this in a family of educated and refined people. I am glad to hear restated that it is possible to contract the disease in a water-closet. The superstition about getting rid of gonorrhea is a very prevalent one among the colored people of the South. I believe with Dr. Scott that there are many vicious men, and some vicious women, but, according to my observations, men are greater distributers of gonorrhea than women; because in dispensary work by far the largest number of cases of gonorrhea occur among females. It must be admitted that in many instances the male is the aggressor.

PREVENTION OF TUBERCULOSIS IN BABES BORN OF TUBERCULOUS PARENTS.*

CLIFTON SCOTT, M.D.
DES MOINES, IOWA.

In the presentation of this subject, I desire to present two cases and from them draw my conclusions and upon them base my arguments.

CASE 1.—Mrs. A. H., a young woman, married at 19 years of age, had suffered with chronic pulmonary tuberculosis for five years previous, the existence of which, she and her mother denied. During the first two years of her married life she had frequent mild attacks of hemoptysis. She continually consulted her old family physician, a homeopath, for these troubles, until Oct. 15, 1896, when she had a severe hemorrhage and I was called in haste. By putting her in bed and applying ice to the chest, the hemorrhage was controlled. I was then invited to take charge of the case.

I found a pulse of 96, temperature of 101, some moist rales in the lungs, quite marked emaciation; cough was not serious, except a paroxysm in the morning; there were no night sweats, and an examination of the first two specimens of sputum revealed no bacilli; in a third specimen, however, about fifteen or twenty to the field were found. I put her on hypophosphites with iron, quinin and strychnia; gave her liquid peptonoids with creosote, and recommended a liberal diet with a glass of cream to drink at each meal, with outdoor exercise and by arranging the changes in this treatment, she improved, gaining some ten pounds in weight. The cough diminished and the bacilli disappeared; no more hemorrhage occurred. She remained under my care for six months, when she ceased visiting me and I concluded that she thought she had discovered the method of treatment I was using and that she could carry it out herself.

About six months later her husband called upon me and wanted a prescription for indigestion, saying that she was nauseated and vomiting, and that she thought the medicine had disturbed her stomach. I inquired as to the possible existence of pregnancy, which he denied. I gave her a gastric sedative and heard nothing more for four months, when he announced that she was five or six months pregnant and that she was greatly alarmed, lest she might not be able to live through the ordeal. I advised him how to reassure her and saw nothing of her for two months, at which time she applied to me for a sore throat. She was now eight months pregnant and had developed laryngeal tuberculosis. There was marked hoarseness, almost complete aphonia. I applied an antiseptic spray and an alleviating treatment, and at term she was delivered of a girl baby, weighing five pounds. The child had an imperforate anus, which I corrected.

I had the child taken to an aunt and fed on modified cow's milk, and prevented communication between it and the mother. The mother was able to sit up and walk slowly about the house after a period of about 2 months. The laryngeal trouble had increased, the general emaciation of the body progressed from this time on and she died when the baby was about five months old. The child is now three years old and is a picture of health and vigor. It is well developed, having exhibited no symptoms of infection or hereditary effect.

CASE 2.—A young woman, married at 20 years of age, claimed to have enjoyed previous good health. Father died of tuberculosis several years before. Marriage occurred in the second week of May, 1899. She claimed to have enjoyed good health during pregnancy. She had worked hard washing woodwork and cleaning a house into which they moved about February 10, and about March 1, I was engaged to attend her in confinement. I found a pulse of about 80, with no albumin in the urine. She claimed to feel perfectly well. I afterwards learned that she misrepresented her general condition of health. Her lungs were not examined.

She was confined March 14; mother and babe did well the first week after confinement and I did not see them again for three weeks. Twenty-five days after confinement, the mother rode three miles into the city in a street car and did some shopping. Two days after this she walked five blocks and read a paper at a literary club. The child had been nursed during this time, and twenty-eight days after confinement I was called to see her. I found her walking about the house, with a pulse of 120 and temperature, 103. I ordered her to bed and notified her mother, who came to attend her. An examination of the lungs exhibited some rales in the left lung. The range of the temperature, and character of the sputum did not indicate pneumonia. The progress of the condition for the next three days excluded bronchitis.

Dr. Eli Grimes was called in consultation; I had collected some sputum, which was stained and examined by Dr. Grimes and myself. The fields exhibited an im-

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee of the Section: Drs. H. E. Tuley, Edwin Rosenthal and Samuel W. Kelley.

mense number of tubercle bacilli. A diagnosis of acute tuberculosis was made. Dr. J. T. Priestly was called in consultation. The babe was immediateiy put upon modified cow's milk. The mother's condition progressed rapidly to an end, she dying just sixteen weeks after her confinement, and the child having nursed during the first five weeks after birth. Immediately after weaning, it began to exhibit loss of weight, palor and cough, also rales could be detected in the lungs. It passed through a well marked history of acute tuberculosis, dying one week after the mother.

In discussing these two cases, what evidence have we that the second one suffered from hereditary tuberculosis any more than should have been expected in the first? To be sure, in one case, tuberculosis was chronic in the mother, in the other, acute. But in the first case, the child was not allowed to nurse and in the second, because tuberculosis had not been diagnosed, it was allowed to nurse and it seems possible that the infection in the second case came from the mother's milk or possibly from kisses, caresses and other contact. I do not think that infection of the child in fetal life, through membranes of the placenta, can be positively denied, but that its occurrence is very infrequent is clearly proven.

The principal point, for which I wish to plead, is, that the old sterectype methods of visiting the mother a few weeks before confinement, securing a specimen of her urine and testing it for albumin is not a sufficient precaution for the safety of the child. These preliminary examinations, made at safe intervals during the last two months of pregnancy, should include a general physical examination and careful search for tubercle bacilli; many cases will thus be found, and our knowledge of the existence of tuberculosis, in otherwise unsuspected cases, will not only enable us to guard better the mother's condition, but will save many babes from infection, through guarding against the use of the mother's milk and infection by contact. If this method be carried out rigidly and the people educated to appreciate its importance and value, many children of tubercular parents can be saved from infection.

DISCUSSION.

DR. EDWIN ROSENTHAL, Philadelphia—I have at the present time under my care an exactly similar case. A woman with tuberculosis gave birth to a child one year ago. The usual bacteriological tests had been made to insure the correctness of the diagnosis. From the moment that this little girl was born it was not allowed to take any of the mother's breast milk. The child was fed on a home modification of cow's milk, and has not shown any evidence of tuberculosis. This is only one of many cases, yet I believe these are the exceptional ones. I believe we should use our influence to advise against marriage of a woman known to be tuberculous. I am convinced that this would greatly diminish the number of cases of tuberculosis.

DR. COLLINS H. JOHNSTON, Grand Rapids, Mich.—This paper brings up several subjects of interest. I think we can learn something from the experience of the veterinarians. The Wisconsin Agricultural Experiment Station has adopted the Stockholm plan of treating tuberculous cows. When an animal reacts to the tuberculin test it is not slaughtered, if in the early days of tuberculosis; nor is the milk of such animals used for any purpose. But experience has shown that these cows can be used for breeding purposes, and that if their calves are removed from the infected atmosphere, placed under good hygienic surroundings and fed on milk free from tubercle bacilli, they will not show any taint of disease. I think most of us must have observed the same thing in the human. Osler, as I have said, insists that there are only twenty cases of congenital tuberculosis in the literature. Dr. Scott's two cases were evidently the result of infection of the mother by her sputum or tuberculous milk. It has been proven, both experimentally and otherwise, in this country and in England, that tubercle bacilli exist in milk of tuberculous cows, and also in the cream and in the butter of milk from tuberculous animals. There can be no question, therefore, that tuberculous mothers can infect their offspring by nursing them. Another cause of tuberculosis in infants is the poor aliment frequently given children in the first year of their lives, whereby they are rendered less resistant to the germs of disease. The great mass of the profession pay very little attention to the question of infant feeding. It is one of the most important problems before the profession to-day.

DR. F. X. WALLS, Chicago—I should like to call attention to a specimen in the pathological exhibit here by Dr. Fütterer. The case is that of a child of a year old who died from localized miliary tuberculosis. In that case there was a primary tuberculosis of the intestine, with an extension of the tuberculosis to the mesenteric and the mediastinal lymph glands. The specimen has been so treated as to preserve the fresh appearance, and it shows the rupture of a caseous lymph node into a branch of the pulmonary vein, and from that a dissemination of miliary tubercles to the remainder of the lung. This emphasizes very well the care which we should take in the management of the babies of mothers who have tuberculosis in evolution. The mother of this infant had been ill with tuberculosis, and becoming insane had been sent to an asylum. It is very probable that tuberculosis is rarely acquired through the milk of a nursing mother, because tubercle bacilli are not eliminated through the normal mammary gland, but only through a tubercular gland. The point made in the paper about keeping these little ones as far as possible from all sources of infection is very well taken, and should be borne in mind.

DR. J. NOER, Stoughton, Wis.—A wrong inference may be drawn from the investigations of the Experimental Station in Wisconsin. I live near that station and am familiar with the work. It is now six or seven years since the first investigation was made. It was found on testing 27 or 30 cows at the station with tuberculin that 86 per cent. of them were infected with tuberculosis. These were all, as I recollect, slaughtered, partly because of the danger of contagion and partly to demonstrate postmortem the diagnostic reliability of the Koch tuberculin test, then new, in incipient cases presenting no clinical evidences of disease. It is true that isolation and quarantine rather than the slaughter of tuberculous cattle has since been the practice in Wisconsin. It has been shown at the Wisconsin Agricultural Station that healthy calves could be raised from tuberculous cows, that is, provided that the calf was at once isolated from the mother and carefully protected from tubercular infection, through milk, drinking water, feeding trough or the stable. Now, as regards the danger of spreading tuberculosis in man through the use of milk and butter from cows having incipient or early tuberculosis, we have, I think, very much exaggerated the danger of transmission. I do not wish to be understood as advocating the use of milk from tuberculous cows. I would like to have all milk cows tested with tuberculin and those showing reaction excluded from the herd supplying milk for human use. This would be a reasonable precaution pending further investigation. There is, however, as yet no evidence to show that bovine tuberculosis is transmissible to man. Is there a person here who can report a case of such transmission? When it was shown that nearly all the cows at the Wisconsin Agricultural Station were tuberculous, a great deal of anxiety was felt by the families at the station, who had been using the milk from these cows for their children. No case of transmission has, however, been traced.

The early studies of the Russian student Rabinowitsch indicate that tubercle bacilli are very exceptionally present in market butter. Adami, of Montreal, has shown that only a fraction of 1 per cent. of Canadian cattle are tuberculous, yet human tuberculosis is fully as prevalent in Canada as it is in the Eastern States, where bovine tuberculosis exists in from 20 to 40 per cent. of the cattle tested. It is evident that we

need more light on this subject before we formulate any conclusions that are worthy of serious consideration.

DR. C. H. JOHNSTON—I do not say that the milk of every tuberculous cow shows tubercle bacilli, because this is not the case, but it has been proven repeatedly that the milk of tuberculous cows may contain tubercle bacilli, even though there is no demonstrable tubercular lesion of the udder. The detection of a tuberculous udder in its incipiency is difficult even for an expert; hence, it may often happen that milk contains tubercle bacilli though no tubercular lesion can be demonstrated in the udder.

DR. I. A. ABT, Chicago—I wish to enter a protest against the idea that there are only a limited number of cases of tuberculosis which are congenital in origin. There is no doubt in my own mind that the number of cases of congenital tuberculosis which occurs in young infants must far exceed the origin in any other way. When we think that children, three months, six months or a year old often die of tuberculosis, although they have been under the best possible hygiene, it seems to me reasonable to suppose that these cases are of congenital origin. The only proof of the hereditary origin of the disease would be the demonstration of tubercle bacilli in the placenta or in the endometrium.

DR. EDWIN ROSENTHAL—Dr. W. P. Northrup presented a paper on "Tuberculosis in Children" before the Philadelphia Pediatric Society, and showed that the very inception of tuberculosis in children is through the lymph nodes primarily.

DR. NOER—I should like to know if any one present can produce a single case in which tuberculosis has been transmitted from the cow to a child. I am not aware that it has been demonstrated that bovine and human tuberculosis are the same.

DR. J. C. COOK, Chicago—I have under observation a lady sick with tuberculosis. It began as a cervical tuberculosis. A most minute inquiry as to the source of infection leaves very little doubt about its having arisen from a pet monkey. This animal had been sent away two years previously because it had tuberculosis.

DR. C. F. WAHRER, Fort Madison, Iowa—It would take a person with much fortitude to feed his children on the milk from a tuberculous cow. I wish to call attention to the specimens exhibited here by the Army Medical Museum. In this collection are several very beautiful ones of tubercular lesions of the udders. I advised a tuberculous mother not to nurse her infant, but to feed it on cow's milk. The cow presented every appearance of being healthy. The child died a few months later, and was found to be tuberculous, showing the importance of examining the animal before accepting the milk. Even if transmission of bovine tubercle to children can not be proved to take place directly, it were surely a good precaution not to feed a child milk from a tuberculous cow.

DR. E. F. BRUSH, Mount Vernon, N. Y.—Some years ago I had a cow suffering from acute miliary tuberculosis. I took the animal to another part of the farm and killed her. I shut up 24 laying hens and a rooster and fed them with tubercular masses from the lungs and intestine of this cow. I selected for this experiment hens because their body temperature is high, about 108 F. Some of them developed tuberculosis within eight days after beginning the feeding experiment. All of them died within five or six weeks from the time I began the experiment. I took the last 24 eggs laid by these hens and set them under healthy hens. All of these eggs developed a chick, but every one of them was dead. I took four of the dead chicks down to the Carnegie Laboratory, but through some mistake or carelessness, they were not examined nor reported upon. I purpose to repeat the experiment.

In regard to the transmission of tuberculosis from cattle to children, I would say that at one time I found a cow with acute miliary tuberculosis and killed her. There was a large tubercular encysted mass in the cow's mediastinal space, which she had probably had for years. The gentleman who owned this cow had brought up seven children on her milk, and although these children must have been fed on tuberculous milk, they remained healthy and did not develop tuberculosis. There must be something else besides the mere presence of tubercle bacilli to start the tubercular disease. The additional element, I think, is an elevation of temperature. I think tuberculin is doing an immense amount of harm, and that its use is entirely unnecessary as a means of diagnosis. I know of a herd that is kept tuberculous by testing the animals with tuberculin. It is a very easy matter to make a diagnosis of tuberculosis in a cow when the disease has advanced far enough to do any harm.

DR. CLIFTON SCOTT, in reply—I wish to thank the members for this interesting discussion. I was much pleased to hear Dr. Abt point out what must be the conditions to have congenital tuberculosis. I do not believe that congenital tuberculosis is so frequent as Dr. Abt seemed to indicate, but the fact that a cow may be tuberculous and not give tuberculous milk unless there is a lesion of the udder points strongly to the fact that the mother may have tuberculosis and yet if the endometrium is not tuberculous during pregnancy there is not much probability of infecting her child. I have always felt a little guilty about not having discovered that the mother in my case was tuberculous before her confinement, for I might possibly have been able to save that child. I did not know that the mother was tuberculous, yet I think if I had been given the opportunity to give the case sufficient attention before confinement I should have discovered this fact.

THE ETIOLOGY OF PARETIC DEMENTIA.*

FRANK P. NORBURY, M.D.
JACKSONVILLE, ILL.

The lesion of paretic dementia is that of a diffuse parenchymatous atrophy of the nerve cells and part, at least, of the neuroglia. This process is essentially chronic and involves more or less the whole of the cortex, even extending to the basal ganglia and the cord. The well-known vascular changes start in the minute arterioles and in a slow but progressive manner involve the nutrition of the cells thereby causing degeneration of the neurons and neuroglia. The cortical substance undergoes atrophic changes and the lymph spaces dilate or widen; the lymph currents are interfered with —they are laden with debris—and ultimately the combined processes produce profound degenerative changes.

The question of the cause of this now well-recognized degeneration is seemingly in dispute, but I dare say that we all feel that there should be but little controversy over this question, when in the light of the accumulated knowledge of to-day we find syphilis paramount as an etiological factor. In fact, it is the one factor—the primary factor—and with Dana we can say "if there were no syphilis there would be no paretic dementia. Other authorities endorse this view, notably Mongeri,[1] who says "syphilis is necessary for the disease to develop; it is the factor which prepares the soil, while alcohol and heredity merely aid in its development." "Without syphilis, congenital or acquired, it is impossible to have general paralysis." These statements do not seem to lack verification when we consider the inoculation experiments, detailed by Krafft-Ebing, where in a series of cases, typical examples of paresis, in which by strict inquiry and examination the previous existence of syphilis could not be ascertained and in the face of this negative history, the patients were inoculated with virulent specific virus and yet after the allotted time for infection no evidences of syphilitic infection occurred. Not a sign or a symptom appeared, thus confirming at least by negative evidence that previous infection had occurred and serves to impress us

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Nervous and Mental Diseases, and approved for publication by the Executive Committee: Drs. Frederick Peterson, Hugh T. Patrick and H. A. Tomlinson.

1. Am. Year Book, 1901.

in the belief of the existence of latent syphilis in all cases of paretic dementia.

Paretic dementia certainly, then, has for a background syphilis. It is not in truth a syphilitic disease *per se,* but a para-syphilitic disease, due to the effects of the syphilitic poison. That is not a syphlitic disease, we know, by the therapeutic test. It is not amenable to anti-syphilitic treatment, in fact such treatment is utterly useless, although many practitioners persist in giving it a trial. The luetic poison of syphilis acts as do intoxicants—it is a toxin—there is auto-intoxication interference with nutrition and after its very early and prodromal stage causes a degenerative change of the nerve elements. There are no syphilitic lesions and in my experience the evidences of syphilis are, as a rule, seldom marked. In the beginning, the vascular stage of paresis, the lesions are those due to a toxin. There are none of the common lesions of syphilis such as noted in cerebral syphilis, viz., gummata and endarteritis. The toxin acts upon neural tissues to produce the morbid alterations, which, while at first they may be purely functional, ultimately become well-defined organic changes.

In the etiological study of about two hundred cases of paretic dementia, I found the history of syphilis in fully 60 per cent., which, in view of the fact that the history of many of these cases is meager, is yet conclusive as to syphilis in the general run of such cases. Inasmuch as it is impossible to confirm by inoculation tests the cases in dispute, we are disposed to believe that possibly many more of these cases are syphilitic and lack but the opportunity to establish the proof. I have sometimes thought that while we regard syphilis as the primary etiological factor, there may be other contributing factors, inasmuch as in my experience I have had several cases that, seemingly at least, have been pronounced or developed after some one of the infectious fevers. Thus suggesting the thought that these fevers assisted in some way in the development of the disease.

The following case, recently under my care, is an illustration:

A ranchman, with syphilitic history, who after successful years in business was induced to go to the Transvaal. Here he contracted pernicious malarial fever, from which he suffered greatly while in Pretoria. He was sent home and while en route it was noticed that he was acting queerly, developed mental peculiarities which in view of subsequent history were indicative of general paralysis. I say in view of subsequent history, simply to enforce what I said in a paper before the Illinois State Medical Society in 1892, that the early symptoms, the functional stage, of paretic dementia is not recognized from other forms of insanity by the attending physician and in consequence the prodromal stage is passed before the alienist meets the case. The stage when if any help is to be had for this disease it is to be given at this time. This patient developed into a typical case of paretic dementia and died after two years from the first appearance of the disease.

Another case first showed recognizable mental peculiarities during convalescence from typhoid fever, the mental symptoms being attributed to a post-febrile psychosis. This case was of the fulminating type, rapid in its course and terminated by death in three years. Another case with negative syphilitic history, during convalescence from an acute articular rheumatism, was noticed by his family to have certain marked changes in his disposition. They thought nothing of it after the family physician assured them "it would pass away." But no, the case progressed, and rapidly too, resulting in death in about two years and a half after the attack of rheumatism.

I am sure that one swallow does not make a summer, but here are three cases coming under my observation, wherein after acute infectious fevers there has followed paretic dementia. Syphilis appears in the history of two—arthritic diathesis and rheumatism in one, all of whom had severe illness, just prior to appearance, at least of recognizable symptoms of paresis, and from such coincidences I am inclined to believe these diseases were contributing etiological factors.

The hereditary history of most of my cases shows that the neuropathic diathesis is the soil upon which this disease grows. Berkley says: "Heredity and syphilis are the most potent etiological factors." In his pathological findings he notes "microscopical evidences of irregular construction and anomalies in the cortical cells." From these facts we infer that there is a certain instability of the nervous elements which contributes to the susceptibility of an individual to the luetic poison of syphilis; that there is in fact selective action of this toxin upon neural tissue under certain conditions. This opens up that great question of immunity and susceptibility which is not to be discussed here. However, experience among the insane, including the cases of paretic dementia, leads all clinicians to form an opinion as to the family peculiarities, the hereditary considerations necessary in studying his cases, when he comes in contact with other members of the family than the patient himself. From this observation, however cursory, he draws the practical conclusion that heredity is certainly a factor and a potent one in paretic dementia.

Alcoholism is a contributing factor, but not of the importance ascribed to it by some. The brain lesions of the alcoholic are not those of paretic dementia and they simply are contributing degenerative conditions, which directly interfere with brain nutrition. I am told that in Colorado, alcoholism is usually a part of the history of such cases, but whether they are mere coincidences or not remains to be seen. I am inclined to believe alcoholism is coincidental in most all cases. I very much question cold, exposure and traumatism as being etiological factors; they can not cause such grave pathological changes. I conclude that:

1. Syphilis is the factor in chief which causes paretic dementia.
2. Infectious fevers with their toxic influences are contributing etiological factors.
3. Heredity is a potent factor.

DISCUSSION.

DR. HAROLD N. MOYER, Chicago—I do not know that I have any exception to take to some things stated by the essayist, but I certainly do not agree to all of the three deductions with which he closes his paper. I think we are not prepared to make the claim that paretic dementia is a para-syphilitic disease, nor do I think the author makes that claim. I know that in from 60 to 80 per cent. of cases of paretic dementia we get a syphilitic history, but does that justify us in saying that all the cases are syphilitic? If so, we must assume that because in a considerable proportion of cases syphilis is the etiological factor, the rest must have had latent syphilis which we were not able to recognize. I believe that such a doctrine is fraught with considerable error, because it is not justified by facts.

The hereditary influence in paretic dementia is very limited and is usually confined to cases of impure paretic dementia, those where we have it with a background of paranoia.

There is one question in relation to paretic dementia which is of considerable importance, namely, the racial distribution

of the disease. Among the natives of Hawaii, syphilis is a household disease; there is scarcely a native who has not been syphilized. Still, not a single case of paretic dementia has been recognized. There are other races among whom syphilis is very common, while paretic dementia is rare. The converse is also true. Recent statistics have shown that while syphilis is rare among the Hebrews in London, as compared with other Caucasians, paretic dementia is relatively quite common.

DR. E. G. CARPENTER, Columbus, Ohio—While my own experience is in accord with the general consensus of opinion that syphilis plays an important part as an etiological factor in paresis, still cases have come under my observation in which it was impossible to obtain any history or evidence of syphilitic lesions, and it is my belief that it is possible for paresis to be caused by factors other than syphilis. I believe that in the causation of many cases of paretic dementia, stress is an important factor. This, together with exhaustion from sexual excesses and the abuse of alcoholic stimulants, is sufficient to produce paresis in one having a neuropathic constitution. I think that in all cases we should be very cautious in asserting that a certain condition is due to syphilis, as there are circumstances where such a statement might do some people much harm; for example, in cases where the question of a pension and insurance is involved.

DR. RICHARD DEWEY, Wauwatosa, Wis.—I have seen at least six or eight cases of paretic dementia in which—as far as you can exclude anything—syphilis could be excluded, unless hereditary syphilis would be assumed. That assumption, however, can not be accepted without the existence of certain data upon which to base it. The statement made by Dr. Moyer, with reference to the racial distribution of syphilis and paretic dementia, leads me to refer to a confirmatory article bearing upon this subject which recently came under my observation. In this article the statement was made that while syphilis was very common in Mohammedan countries, paretic dementia was much rarer there than in non-Mohammedan countries, especially in Christian countries.

DR. SYDNEY KUH, Chicago—It seems to me that the question as to the etiology of paretic dementia, so far as anything definite can be said about it to-day, may be summed up as follows: That there is much evidence to show that syphilis is by far the most important etiological factor, both in paralytic dementia and in that other disease which is so closely allied to it, tabes. Whether or not syphilis is the only etiological factor it is impossible to say. The argument that in countries where syphilis is common, paretic dementia and tabes are very rare would prove nothing either in favor of or against the theory that there is some connection between the two conditions. The character of syphilis has changed completely within the last four centuries. When syphilis was first described, it had the character of an acute infectious disease which in a relatively short period terminated fatally. It is very possible that in certain countries the character of syphilis has assumed a different form from that which it has assumed with us. It seems that certain types of syphilis are particularly prone to produce grave degenerative changes in the nervous system of certain individuals. Instances have been recorded where two or three men were infected with syphilis by the same woman at practically the same time, and all developed the symptoms of tabes.

DR. EDWARD E. MAYER, Pittsburg—While it is a well-known fact that most cases of paretic dementia give a syphilitic history, it seems to me that we must place the relationship between these two diseases upon a more scientific basis. Because syphilis has occurred in a case of paretic dementia, it does not indicate to me that syphilis is the etiological factor. We should try to ascertain if the syphilis is responsible for the lesions. As the essayist has pointed out, the lesions found in paretic dementia are not those of syphilis. The time that has elapsed between the syphilitic infection and the onset of the paretic dementia should also be borne in mind. We should not at once jump to the conclusion that syphilis is the cause of the paretic dementia. That syphilitic toxins—whatever they are—may evoke nutritional disease of the brain-cells can not be doubted, sufficient, indeed, to produce pronounced disease, but we must satisfy ourselves as to what conditions are produced by it, how it impairs nutrition and what action its toxins have. There may be other factors—the various toxemias, or exhaustion, or even traumatism may be the factor in the disease. I am willing to admit that syphilis is a most important factor in the causation of paretic dementia, but it should not be necessarily regarded as the only cause.

DR. H. A. TOMLINSON (chairman)—In considering the possible etiological relationship between syphilis and paretic dementia we should not lose sight of the fact that syphilis is a widely prevalent disease and almost as old as history, while general paresis, or paretic dementia, as the writer calls it, is comparatively infrequent, and, so far as we know, limited to the centers of modern civilization. Furthermore, when paretic dementia occurs in a syphilitic, the manifestations of the latter disease are not conspicuous and do not resemble other syphilitic affections of the nervous system, either in symptoms of somatic involvement or in its histology. Besides, syphilis frequently attacks the brain and produces degenerative disease, accompanied by dementia; that is not general paresis. It may also be claimed that the victims of syphilis and general paresis come from the same general class, and would therefore be equally liable to other possible causes of general paresis.

DR. FRANK P. NORBURY, in reply—I do not know that I can add anything further to the discussion. The fact is the Chairman covered the points that I had in mind. One of the speakers referring to stress as a factor in the production of paretic dementia, said that it was a prominent cause. In my experience this is not such a factor as is supposed, for comparatively few of my cases have come from the large cities—the busy centers of civilization—most of them come from the rural districts, and I am quite sure that they were not subjected to any special stress, either in connection with their occupation or social conditions. I believe the neurasthenic ciass alone succumb to stress. I have never seen a neurasthenic develop paretic dementia. In most of my cases the paretic dementia developed from fourteen to eighteen years after syphilitic infection, while several of them gave no history of infection at all. Yet from my knowledge of them as individuals I knew that they had often been exposed to such infection. In conclusion, I wish to emphasize the importance of the early recognition of paretic dementia. At the beginning of this disease there is a functional stage, as pointed out by Folsom some time ago, and if the symptoms are recognized during this stage we may be able to do something to arrest its progress. If allowed to go on, organic changes occur, with resulting dementia and death.

Clinical Report.

CASE OF SIMPLE FRACTURE OF THE VAULT, WITH MENINGITIS ON THE THIRD DAY. AUTOPSY.

EDWARD T. ALFORD, M.D.
INTERNE IN THE CHICAGO BAPTIST HOSPITAL,
CHICAGO.

The patient, Mr. W., while riding on a bicycle, Tuesday morning, June 1, was struck by a street car and severely injured. He was immediately taken to the Baptist Hospital, entering the service of Dr. Bayard Holmes, at 10:15 a. m. At this time he was conscious; there was no deviation of the eyes, no ptosis and the pupils were neither contracted nor dilated, and they both reacted to light. His hearing was apparently normal and there was no hemorrhage from the ears. There was no aphasia, as speech was normal, and no paralysis in any part of the body was evident. There was a good deal of hemorrhage from the nose and mouth, the upper lip being cut from the left nostril through the lower border of the nasal septum and through the lip a little to the left of the median line. This involved all the structures of the lip. A second wound on the inner surface of the mouth was found extending backward from the right angle of the mouth for

the distance of an inch or more. Some of the teeth on the right side of the lower jaw were broken off, and the mucous membrane lacerated; the right lower jaw was fractured with over-riding displacement, the posterior fragment over-riding the anterior. This fracture was shown by crepitus and deformity of the lower dental arch. A small contused incised wound was found over the occipital region and another long contusion at the outer right border of the frontal bone.

The patient was then anesthetized, the occiput shaved, and the wounds about the nose and mouth were carefully sutured and dressed. An attempt was made to reduce the fracture of the lower jaw by the use of a four-tailed bandage, but reduction could not be maintained. Patient was then put to bed.

Tuesday afternoon the patient vomited considerable blood, and that night was delirious for a short time. His temperature at this time was 99.5, pulse 88. On Wednesday morning I examined the patient with Drs. Holmes and Teschan. There was at this time no extravasation of blood under the lids or over the mastoid regions. The pupils were equally contracted, which contraction might have been the result of median line and muscular tonus was normal. There was no deviation of the eyes or ptosis. The tongue protruded in the median line and muscular tonus was normal There was no evidence of blood in the ears and hearing was apparently perfect. His temperature was 99.4 and his pulse 76. In his conversation he seemed rational, but he did not realize his serious condition. On Thursday morning, June 13, an examination showed improvement. There were no evidences of fracture of the base of the skull or compression of the brain. His temperature still remained about 99.4 and his pulse 88. The examinations of the urine were negative. The right lower jaw had become very much swollen and infiltrated.

An examination Friday morning, with Drs. Holmes, Teschan and McCaw, showed no paralysis or spasms of the face, arms or legs. There was no aphasia. There was no deviation of the eyes. The pupils were equally dilated and reacted to light. An extravasation of blood was noticed over both mastoid regions. This extravasation was more marked on the right side, and we thought that there was a slight extravasation under the right eye. Hearing was apparently normal. At noon of the same day he complained of a severe headache; his temperature was 98.6, and his pulse 78. At 3 o'clock in the afternoon he became delirious, got out of bed and walked about the halls. He rapidly grew worse, and about 4 o'clock was put in restraint. At 8 o'clock that night I examined the patient with Drs. Holmes, Boice, Teschan, Biggar, and McCaw; during the examination Dr. Sippy came in. At this time the temperature, per rectum, was 104.4, the pulse 78, and the respiration 25. The restraint which had been applied was removed. Some hemorrhage was noticed from the nose. The pupils were equally dilated. There was no ptosis or deviation of the eyes. Sensation on both sides of the face seemed to be normal. He was easily tickled in either nostril, and when struck lightly on either side of the face he seemed to respond. Two or three times a slight spasm was noticed going up the left side of the face and involving the lids. Extravasation of blood was seen under the right eye and over both mastoid regions. This was peculiar in that it extended above and in front of the ear. The right lower jaw and floor of the mouth were infiltrated and swollen. Kernig's sign was not present. The patient was excited, had illusions and was constantly picking and pulling, with a good deal of force, at objects seen about him.

At this time we assumed from the findings: 1, that there was no compression of the brain, either from depressed bone or hemorrhage; 2, that there was a fracture of the base of the skull in spite of the fact that there was no deviation of the eyes, no ptosis, no hemorrhages from the ears, no apparent loss of hearing, or no paralysis, but from the fact that there was hemorrhage from the nose and extravasation of blood over the mastoid regions and under the right eyelid; and, 3, that the patient was suffering from acute general meningitis, the infection having probably occurred through a fracture in the ethmoid or a fracture through the petrosa into an infected antrum.

The prognosis made at this time was that the disease was absolutely fatal, and that no treatment was indicated. The patient was then put in the care of a strong male nurse, without restraint, and directions were given to watch the patient for two hours or more without treatment in order not to obscure the diagnosis of the case, and after two hours a sedative might be given in sufficient quantities to keep the patient quiet. An ice bag was applied to the head, but no medicine was given until 2 o'clock, when 60 grains of sodium bromid was given per mouth. The patient rapidly grew worse during the night, and had involuntary urinations. His temperature at 5:20 a. m. was 107, his pulse 144, and respirations 58. There was a tendency for his tongue to fall back into the throat and to impede his respiration. He died June 15, at 4 o'clock a. m., while in a general convulsion.

POSTMORTEM.

Permission was given to enter the cranium by the coroner. It was held in the presence of Drs. Holmes and Boice.

The contused wound over the occiput and over the right border of the frontal bone were healthy and showed no redness, swelling or edema. The lower jaw on the right side corresponding to the fracture was very much swollen and densely infiltrated, the base of the tongue was also infiltrated and swollen. Extravasation of blood was seen over both mastoid regions, this extended above and in front of the ears. After dissecting the scalp forward an extravasation of blood was found starting from a crucial fracture of the vertex and extending downwards on both sides of the head in front and back of the ears, thus accounting for the extravasation seen in previous examinations.

The fracture followed the sutures, commencing about the posterior third of the interparietal suture, running forward and extending into the frontal bone for about an inch, turning a little to the right as it entered the frontal bone. It also extended from the interparietal suture along the frontoparietal sutures on either side for the distance of an inch and a half. The fracture opened into the superior longitudinal sinus, and a small thrombus was found along its course extensive enough to cause obliteration of the sinus.

The meninges were injected and somewhat edematous. The ventricles were distended and the cerebrospinal fluid increased in quantity. The brain tissue seemed somewhat softer than normal. The dura mater about the base of the skull was carefully and thoroughly removed and a careful search made for the fracture of the base of the skull, but none could be discovered.

The middle ears were opened and inspected. The drum and ossicles on both sides were normal and there was no evidence of any present or previous inflammation. There was peculiar circular depression about one-half inch in diameter in the middle fossa of the skull on the right side just at the base of the petrous portion of the temporal, looking as though it might have been the result of a previous ulcerative process, but no present pathologic significance was attached to this. Cultures were taken from the spinal cord by subarachnoid puncture and from the ventricles but showed no growth.

This case is of peculiar interest in three respects: 1. The scalp was apparently uninjured over the seat of the fracture of the vault. 2. The extravasation of blood behind the ears, so common and almost pathognomonic in fractures of the base, came from an unrecognized fracture of the vault. 3. The infection of the meninges must have come through some small and undiscovered fracture into the ethmoid cells, or the offending microbes gained access into the blood from the focus afforded by the swollen and infiltrated jaw and localized in the meninges, causing an acute serious leptomeningitis; or the meningitis may have occurred as a part of a progressive sepsis.

Petrifaction of Kidneys.—More than 400 calculi were found in the left kidney and 60 larger ones in the right, at the autopsy of a young soldier who had died suddenly with heart symptoms. Death was due to enormous dilatation of the heart, as there had been no retention of urine. It is described in *Méd. Moderne*, 1901, 29, as actual petrifaction with consecutive interstitial nephritis and fibrous degeneration.

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A PREMATURE CRITICISM.

An editorial on the surgical aspect of President McKinley's case in a leading medical weekly calls for some comment. The preceding issue was generally optimistic, as were all at the time from the apparently favorable aspect of the case during the first few days. The editorial under consideration is distinctly critical, and indeed decidedly unfriendly, in its comments on the conduct of the case and the shortcomings of the autopsy. The medical profession as yet has had no full report of the findings, none that in our opinion authorizes us in indulging in unfriendly criticism or in extensive premature generalizations, but this is evidently not the view held in the editorial in question. It admits that while the operation on the President was faultless in its technique and brilliant as far as it went, it was necessarily an incomplete one, but it goes on to say that the surgical judgment of the surgeons was in error, implying that they should have disregarded the necessary limitations of the operation, the patient's condition and the value of the precious time. Attention is given to the autopsy, and while admitting that not one of the principal lesions gave any evidence of its existence during life, the writer talks about "a most startling error in diagnosis," and wants to know why, if it was impossible to follow the course of the ball at the time of the operation, the gentlemen in the case were so satisfied with the "real nature of a wound that they obviously knew nothing about?" The absence of an *x*-ray examination during life is harshly commented on as if there could be no possible reasons against it, and the insinuation—certainly not a justifiable one as is proven by the evidence submitted at the trial just closed—is made that it was not thought worth while at the autopsy to thoroughly search for and find the bullet. It even goes further than this and speaks of a condition of which we have no evidence whatever, such as a leaking kidney. There is, it seems to us, an evident "I told you so" spirit in the editorial that is unfortunate, to say the least.

We see no reason to change the opinion we have already expressed, namely, that all that medical science and conscientious care could do for the President was done. Whether "under like circumstances in future the gentlemen concerned would act somewhat differently" may be a question, even with the knowledge gained by this experience; the conditions might make it impossible to do more. We do not know that such conditions did not exist in the case of the President, and lacking that assurance we believe such a comment unnecessary and unbecoming. The operation was one to try to the utmost the courage and judgment of those in charge, and we do not feel assured that any others in their place could have done better. To err is human, as our contemporary judiciously quotes, but we do not think it has been clearly demonstrated beyond question that there were any avoidable errors in the management of this historic case.

While we believe that honest criticism is always to be encouraged, on such an occasion as this it would be well to be sure of the absolute truth of the statements on which criticism is based before it is made. A journal claiming to represent the medical profession ought certainly to guard the rights of those it claims to represent so long as truth and facts allow it to do so. There will be time to criticise the management of the case of President McKinley when all the facts shall be revealed in the full report of the case and in the official report of the autopsy. It is well in all cases where there are not the strongest reasons to the contrary that, as a lay journal says, "we should give good men credit for good motives, good judgment and good actions. . . . Some time a valuable life may be lost because the would-be life saver is not at his best and bravest through fear of hostile criticism or carping misapprehension."

RELATIONAL ANATOMY.

Professor Jackson has done a real service in introducing what must be regarded as a new and important method for preparing and studying gross sections of the human body, which he described in his paper printed in these columns last week.[1] The great value of the frozen sections made by Braune and others has been generally recognized, but the difficulty of making these sections has hindered many anatomists from using them to the extent which the importance of the study for the acquisition of a knowledge of topography renders desirable.

The formalin injection used by Dr. Jackson fixes each organ perfectly in its natural position. Freezing is entirely unnecessary for the making of sections; they can be satisfactorily prepared with the aid of only a butcher's knife and saw. The principal advantage of the method, aside from its simplicity, lies in the ease with which the preparations may be preserved, handled and studied without danger of injury.

The procedure promises to be of value not only for surgical anatomy but also for the study of human anatomy as a pure science. The student who learns his gross anatomy by dissection alone can not possibly gain a normal conception of the natural relations of the various parts to one another. Dissection consists essentially of the removal of the coarser connective tissues and fat from the body. This has to be done gradually, and while the method permits of the gaining of

1. See THE JOURNAL of September 21, p. 731.

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knowledge concerning the form of the individual gross structures, the student unavoidably loses sight of the real relations of structure to structure as they exist before the tissue has undergone that mechanical analysis which dissection necessitates. If three series of sections—corresponding to the three dimensions of space—through the whole body made by Dr. Jackson's method be carefully studied and drawn the student should be able to make a mental reconstruction of the entire organism of greater practical value to him than that obtainable by any other method. We do not mean by this that dissection is likely to be superseded by a study of such series of sections; on the contrary, thorough and clean dissections are now more important than ever; but it may fairly be prophesied that dissecting-room anatomy will from now on be supplemented in much greater degree than heretofore by some such topographical method as Dr. Jackson suggests. The two methods, that of a study of serial sections and that of dissection, will be reciprocally beneficial to one another.

It is gratifying to note that the topographical method employed has been introduced by a professor of anatomy in a medical college of the Middle West. Now, that medical schools of the better sort in this part of the country have come to recognize the necessity of having the chairs in the scientific branches of medicine filled by men who give their whole time to teaching and investigation, we may hope not only that anatomy, physiology and pathology will be better taught to medical students than they have been in the past, but also that these sciences will from time to time be enriched through the activities of their representatives in the fields of original research.

THE RESORPTIVE POWERS OF THE PLEURA.

This important question has been investigated experimentally by Grober[1] in Stintzing's clinic in Jena. Of the various factors that have been emphasized as promoting absorption from the pleural cavities, Grober does not attach any importance to the aspiration on part of the thoracic duct nor to the *vis a tergo* of the blood pressure and of the tissue fluids. The purely physical forces of osmosis and capillary attraction are of some importance undoubtedly. Whenever accumulations of fluid in the pleural cavities are of less concentration than the blood serum and the lymph, the walls of the vessels in the pleuræ will act as semipermeable membranes and permit currents of fluid to pass into their contents, according to the general laws of osmotic pressure.

Thus Castaigne[2] finds that during the first week of exudative pleuritis the pleural fluid is more concentrated than the serum of the blood. Aspiration would be useless at this time because fluid would rapidly accumulate in the pleural cavities.

But the most important factors are found in the movements of the respiratory organs. During respiration the intrapleural pressure varies as the lungs are pressed more or less firmly towards and against the chest walls; in case the pleural layers come in contact at certain points the fluids in the cavity are pressed into the openings in the wall; and finally as the ribs are separated and approximated the lymph vessels in the costal wall which communicate by openings with the pleural cavity are alternately compressed at some points and extended at others, thus constituting a suction pump. When respiration is shallow and superficial, absorption from the pleura is less marked than when the respiration is normal. And naturally absorption is also dependent largely upon the actual conditions of the tissue in the pleural membranes, whether normal or pathological. It is not at all surprising that absorption is greatly delayed when the pleuræ are the seat of various forms of inflammation. Grober also adduces a certain amount of evidence that the healthy pleura absorbs living micro-organisms and toxins which are thereby rendered harmless. In the inflamed pleura this power is also diminished. To the surgeon and the physician who alike are interested in the removal of pleural exudates Grober's experiments present much of value and interest.

1. Ziegler's Beiträge, 1901, xxx, 267-347.
2. Soc. Méd. des Hopitaux, 1900, July 6.

COMPLEXION AND ABILITY.

Mr. Havelock Ellis' recent papers on certain questions of British ability have developed some interesting statistics. He finds from an analysis as regards complexion, of the portraits in the National Gallery, that fair complexion is more frequent among political agitators, soldiers, sailors, scientific men, poets, etc., while statesmen, clergymen, literary men, etc., are predominantly dark. Political agitators and reformers are at the one end of the list, being very largely blonds; the opposite extreme is occupied by actors and actresses, who are almost always dark. So far as Ellis can learn, "no really fair person has ever risen to the highest dramatic eminence in England," and, so far as he has been able to observe, the case is the same throughout Europe. He concludes that excess of fairness prevails among those of restless enterprising spirit, and the reverse is true in the aggregate of dark people, which includes the men of thought rather than of action, the teachers of religion, the humble classes, in short those whose tendency is to practice and preach resignation.

The explanation he gives is that the relation between pigmentation and mental aptitude is chiefly indirect and due to race. The fair man is energetic and restless, it is suggested, because he belongs to an original fair stock of people that possessed these qualities, while the dark man tends to be resigned, religious and imitative, yet highly intelligent, because he belongs to a stock with those characteristics. There are some criticisms that are naturally suggested by these conclusions. In the first place, the figures are too small; the writer generalizes in regard to people of low birth, who are probably not very fully represented in the British National Gallery of

portraits, from a dozen individuals. Considering the composite origin of the British race and the frequency of ultra family variations it appears incorrect to speak of anyone belonging to any particular stock, whether fair or brunette. It might be a little better to say, "throws back" to such a stock; but this also is a conjecture. There is no one of the average Britons who has not had a very mixed ancestry in this particular respect; the one pure race, one of the most enterprising and active ones, at least in a business way, is very generally brunette in Great Britain—the Jews. On the whole it would seem better to explain the facts, so far as they exist, by the old temperament doctrine, which has at least a little basis of truth, at the same time recognizing the imperfection of the data and the weakness of any extensive generalization upon them.

MEDICAL EDUCATIONAL STATISTICS.

The task of working up the data and tables which appeared in the educational number of THE JOURNAL was one of great magnitude and was rendered all the more difficult by some of the minor schools neglecting requests for information. It is possible that there may have been an error in the matter of some of the figures, but we believe that those given are practically correct and that we have presented statistics that have never before been attempted in this country. It will be appreciated if the authorities of the different colleges will verify our work, or notify us in the event of any misstatement that it may be corrected. It is intended that the work shall be carried on in an educational number each year, thus giving reliable information and figures in the matter of medical education. One mistake was made in a note crediting the figures of the population to the United States census of 1890; they were taken from that of 1900.

The table which gave the number of students from the different states in the several colleges was necessarily incomplete owing to the fact that the catalogues of some of the schools do not indicate the state from which the student comes. However, many lessons may be learned from it. It is, for instance, interesting to note especially in regard to the small schools, how the patronage is entirely local.

Considering all physicians in this country, as given by Polk's Medical Register, 1900, except army and navy surgeons, we find that there is one physician to each 637 inhabitants. Of the total number, there are about 104,094 belonging to the regular school, 10,944 to the homeopathic, and 4,752 to the eclectic and nondescript schools—in all 119,788. To this number must be added those receiving degrees the past two years, and of course death subtracted. The probability is that in round numbers there are 125,000 licensed physicians in the United States.

After much correspondence the Pacific Coast Regular College of Medicine has been reported as having had 14 matriculants and 7 graduates the past year. This gives a total of 5,451 graduates and 26,431 students registered for the school year 1900-1, and it is thus shown that one of every 2,888 inhabitants was a medical student.

There are in the United States 155 colleges that confer the degree of M.D.—122 of the regular school, 20 homeopathic, and 13 eclectic and nondescript. In our table of medical colleges 159 were shown, but two of these, the School of Medicine of the University of Kansas and the Medical Department of the University of North Carolina, do not grant degrees, the two homeopathic colleges in Kansas City, Mo., consolidated, and the Curtis Physio-Medical Institute, Indianapolis, was believed to be in existence, but nothing authentic has been learned. This gives the almost startling ratio of one medical school to approximately every 500,000 population in this country. Comparing this to the figures shown in some of the other countries: Great Britain has one to every 2,350,000; Germany, one to 2,500,000, and Austria, one to 5,000,000.

TESTIMONIAL BANQUET TO DR. N. S. DAVIS.

The banquet to be given in honor of Dr. N. S. Davis, at Chicago, on October 5, ought to be a notable event. We, in this country, are beginning to adopt the praiseworthy custom of showing our great men that we appreciate them while they are yet with us, and there has been no better opportunity afforded to give honor where it is due than this one. It is sixty-five years since Dr. Davis entered on the practice of medicine and these have all been years of active usefulness and prominence in the profession. His connection with the founding of the American Medical Association would of itself insure him an immortality in our records and memories, but it is only one incident of his leadership in all good works and causes. His active advocacy of higher medical education, which he was one of the first to promote, of higher ethical standards, of temperance, etc., can never be forgotten so long as there is a history of American medicine, and while in his long life of usefulness there may have been many who have differed with him on some details, no one has ever questioned the sincerity and honesty of his opinions or his honorable methods. There is no one living at the present time that the American medical profession ought more to delight to honor, and we are sure that its members will not allow the occasion to pass without showing their appreciation of the opportunity.

LOW BIRTH-RATE NO CAUSE FOR ALARM.

An English clergyman, the Dean of Ripon—in that usual outlet of British feeling, a letter to the *Times*—laments the decrease of the birth-rate in England, which has fallen from 34 per 1000 of the population in 1875 to 29 per 1000 in 1900. At this rate he concludes the birth-rate will in time be entirely suppressed and the climax of England's decadence be complete—with its final baby. Such forebodings remind one of Mark Twain's calculations on the length of the Mississippi,

which was continually being shortened by cutting off bends. He calculated the time when Cairo would be a suburb of New Orleans and offered the result as an example of the beauties of statistics which give the largest results of theory for the smallest investment of facts. The birth-rate of England, like that of every modern civilized country with a higher standard of living and diminishing proletariat, tends to decrease, and if this decrease does not progress too far it is a sign of prosperity and well-being of the population. An excessive birth-rate, like that of parts of Russia, means usually an excessive infantile death-rate; children come too often to be properly cared for, and are too common to be duly valued. If the birth-rate falls below the death-rate, of course the result is national extinction; but this has not happened anywhere lately, to our knowledge, except among a few degenerate Indian tribes, etc. Even a low enough ratio to indicate immediately threatening decadence is rare where vital statistics are reliably collected. Those of Great Britain must be beyond any question, but the fall of 5 per 1000 in twenty-five years need not as yet be very alarming.

"SHADOWING."

The Sacramento *Bee*, the paper which was so indefatigable in its opposition to the ostrich policy of the California authorities as regards the plague last spring, publishes a curious detective's bill recently paid by the California State Board of Health. The bill is for "shadowing" Drs. R., F., and W., which the *Bee* interprets to mean Dr Ryfkogel, the ex-bacteriologist of the State Board of Health, who left the board apparently on account of his diagnosis of the plague in the earlier San Francisco cases; Dr. J. M. Flint, bacteriologist of the Marine-Hospital Service, and Dr. J. H. White, United States quarantine officer and successor of Dr. Kinyoun at San Francisco. If these identifications are correct and the paper furnish some evidences supporting them, at least in part, besides its positive editorial affirmation, the question naturally arises why was this bill incurred, and what good has come of such expenditure. "Shadowing" is practiced for two purposes: legitimately to obtain evidence of crime, illegitimately to manufacture evidence of crime. Of what crime have Dr. Ryfkogel and these United States officials been guilty, or what good reason was there of suspecting them of contemplating one? If these questions can not be satisfactorily answered there was no ground for the legitimate use of spies upon their movements. We do not say that the California authorities can not give a good reason, but what it is, is beyond the scope of our imagination. If they have none, the performance is a disgrace to them and an insult to respectable physicians as well as to a department of the public service of the United States.

UMBILICAL INFECTION WITH BACILLUS PYOCYANEUS IN THE NEWBORN.

In an epidemic of so-called umbilical sepsis in Berlin, involving eleven fatal cases, Wassermann[1] found in all umbilical arteritis, one or both arteries being filled with the hypogastric artery. In seven cases there was a metastatic focal pneumonia with hemorrhagic and cellular as well as fibrinous exudation, necrosis and abscess formation. In two cases there was an acute fibrinous pericarditis. In the last four cases the bacillus pyocyaneus was obtained in pure culture from the umbilical thrombo-arteritis and the pulmonary foci. This bacillus produced an inflammation around the umbilical arteries and a general infection after application in pure culture to the umbilicus of newly born guinea-pigs. It seems that a continuous grouping of umbilical sepsis like this described by Wassermann is practically a new observation. The constant involvement of the umbilical arteries, while the vein remained free, illustrates the previously noted predilection for infection of the arteries. Runge found the arteries involved 51 times in 55 cases of umbilical sepsis. The explanation given of this marked predominance of arterial infection is as follows: The infection begins in the perivascular tissue, whence it extends to the vascular wall; the connective tissue around the arteries at the umbilicus is double as thick as that around the veins, hence the much greater chance for infection of the arteries. Wassermann reviews the literature of pyocyaneus infections in man and shows that it is especially in infancy that the bacillus of green pus acquires special importance. The occurrence of eleven cases of umbilical sepsis within a period of about six weeks in one obstetrical clinic is in itself somewhat remarkable, and the more so as the cause seems to have been bacillus pyocyaneus. But Wassermann offers no explanation as to the probable mode of infection nor as to the source of the infectious agent.

1. Virchow's Archiv, 1901, clxv, 342-364.

THE YELLOW FEVER EXPERIMENTS IN CUBA.

The Caldas serum experiments in Havana appear to have come to an end in a way that is decidedly unsatisfactory to the discoverer of this alleged cure. According to the telegrams from Cuba the commission appointed to examine its merits has recommended a discontinuance of all experiments on the ground that Dr. Caldas keeps his discovery a secret, it is said, to favor a company which has been organized for its exploitation, that his claims that the yellow fever agent is found only in the intestinal tract is not supported by other evidence of mosquito inoculation and direct blood inoculations, and lastly, that his attempt to immunize individuals against yellow fever by his serum has failed. As regards this point there is a question raised by Dr. Caldas; he denies the correctness of the diagnosis of yellow fever in the serum-treated patient by the American physicians. Against this alleged failure he claims a long record of successful experiments by himself and Dr. Bellingzaghi in Brazil and Mexico; hence, he considers the Cuban test inconclusive as regards the merits of the cure. It is hardly possible that there are any material differences between yellow fever in Brazil and Cuba, and that the experts in the latter country are less skilful diagnosticians than Dr. Caldas. His assertion also that the cases in Havana were all instances of blood poisoning from mosquito bites does not carry with it any inherent evidence of probability—accidents of that character do not happen so frequently. It does not appear

that any prejudices on the part of the commission on account of his unethical secretiveness to the nature of his remedy stood in the way of their giving it the trial in which it has failed. and any complaint by him on that account is scarcely justified except indeed that he may claim that it was not complete enough. From the telegraphic dispatches it would appear that his methods were not such as to convince the commission of his genuine scientific spirit as an investigator, and the medical profession generally will pardon the members for not desiring to be utilized in furthering any commercial exploitation of a secret formula. If Dr. Caldas goes back discredited he will apparently have himself to thank for his ill fortune.

Medical News.

CALIFORNIA.

Santa Fe Hospital.—The Santa Fe system has decided to erect a hospital building in Los Angeles for the use of its employees.

Dr. Harkness' Estate.—The appraisement of the estate of the late Dr. Harvey Wilson Harkness, San Francisco, places its value at $29,343.

Tuberculosis Reports.—The Oakland Board of Health has adopted a resolution recommending an ordinance which will compel all physicians promptly to report cases of tuberculosis to the board.

Dr. Thomas W. Huntington, San Francisco, associate professor of clinical surgery in the Medical Department of the University of California, has been recently appointed professor of clinical and operative surgery.

To Isolate Consumptives.—Dr. John M. Williamson, president of the San Francisco Board of Health, in his annual report, recommends that a separate ward be constructed at the City and County Hospital especially for consumptives.

The new Emergency Hospital, Golden Gate Park, San Francisco, the foundation for which has just been laid, will be ready to receive patients, January 1, 1902. It will have a capacity of 60 patients and is expected to cost more than $8000.

San Francisco Deaths.—The report of the vital statistics for the year ended June 30, 1901, shows that 7008 deaths were registered. Of these 1107, or 15.8 per cent., were from tuberculosis; 713 from heart disease; 691 from pneumonia; and 573 from violence. Only 4877 births were registered during the year.

Personal.—Dr. Theodore F. Johnson, National City, has gone to San Francisco for two months of post-graduate work. ——Dr. Walter M. Boyd, Los Angeles, is dangerously ill with blood poisoning.——Dr. Harry Wilson, who served in Cuba and the Philippine Islands, has left the army and settled at Fresno for practice.——Dr. Herbert A. Johnston, Anaheim, has purchased a residence which he will maintain as a sanatorium. ——Dr. L. Franklin Dozier has been appointed resident physician at the State Hospital for the Insane, Napa, to succeed Dr. Alden M. Gardner.

COLORADO.

Typhoid at Denver.—The Arapahoe County Hospital is now full of typhoid fever patients. They are mostly from ranches or the mountains and not from Denver itself.

New Medical Licensees.—The Colorado State Board of Examiners passed upon and granted licenses to 268 applicants during the year ending June 30, 1901. Of these 232 were regulars, 28 homeopaths and 8 eclectics.

The Sanitary Bulletin of August 31 states that during the month of August, 71 cases of diphtheria, 104 of scarlet fever and 52 of smallpox were reported to the State Board of Health. This shows an increase over July of 5 cases of diphtheria and a decrease in scarlet fever of 142 cases and in smallpox of 11 cases.

CONNECTICUT.

Dr. William H. Barton, New Britain, has been elected pathologist and bacteriologist at the New Jersey State Hospital, Morristown. He will assume the duties of his new position, October 1.

Personal.—Dr. Myron P. Robinson, Terryville, has moved to Windsor Locks.——Dr. James Stretch, Meriden, has located in New Haven.——Dr. Louis E. Cooper, has been appointed medical examiner of Ansonia, vice Dr. William H. Cooper.

Mortality of Connecticut.—The Bulletin of the State Board of Health shows that by mortality reports received there were 1310 deaths during the month of August. This was 13 more than in July, and 332 less than in August of last year, and 151 less than the average number of deaths in August for the five years preceding. The annual death rate was 18.5 per 1000 for the large towns, for the small towns 13.8, and for the whole state 17.3. The deaths reported from infectious diseases were 423, being 32.2 per cent. of the total mortality.

ILLINOIS.

Diphtheria at Maroa has caused the closing of the public schools and churches.

Smallpox has been reported at Jimtown, near Berlin, Sangamon County; Delavan and Springfield.

Dr. Amos F. Moore, Dixon, has been commissioned assistant surgeon, with the rank of captain, and assigned to the Sixth Infantry, I. N. G.

Personal.—Dr. William T. Sloan, health officer of Peoria, has resigned, and Dr. William R. Allison has been appointed temporarily to the position.——Dr. Charles G. Rayburn, Roseville, has located in Kewanee.

Psychurgery.—The Elgin College of Psychurgery has been incorporated by three individuals said to be "doctors," but whose names have for some unexplained reason been omitted from the list of registered physicians of the state. The object of this "college" is to teach drugless healing.

Chicago.

Dr. P. J. H. Farrell has been commissioned major and surgeon and assigned to the Sixth Infantry, I. N. G.

Hold-Ups and Burglary.—Two physicians have been held up and robbed within the last week, and Dr. D. Lee Shaw lost property valued at $500 by a burglary, September 16.

Seven women physicians have been arraigned by the State Board of Health for practicing medicine without licenses and for advertising as physicians. Of these only one name appears on the physicians' register.

Banquet to Dr. N. S. Davis.—The following invitation has been sent out: "You are cordially invited to a banquet and memorial presentation in honor of Nathan Smith Davis, M.D., LL.D., in honor of his long and distinguished services in medicine in its every form of usefulness, to be given by the medical profession of America, in the banquet hall of the Auditorium Hotel, Chicago, Saturday, October 5, 1901, six o'clock p. m. The committee consists of Drs. Christian Fenger, J. H. Stowell, F. X. Walls, W. S. Haines, Edward F. Wells, and Arthur R. Edwards.

Personal.—Dr. Henry S. Zimmerman has bought the property of Dr. John A. Schreck, Cameron, and will locate there. ——Dr. Elmore S. Pettyjohn has returned from Europe and opened an office in suite 902, Stewart Building.——Dr. F. Gregory Connell is taking a month's trip to the Pacific Coast. ——Dr. Joseph M. Patton and family have returned from a two months' vacation in the Alleghenies.——Dr. and Mrs. Lewis L. McArthur have returned from their summer home at Mackinac Island.——Dr. and Mrs. Ralph E. Starkweather and Dr. John R. Neely registered recently at Buffalo.——Dr. and Mrs. Frank Allport have returned from a European tour of six weeks.——Dr. Frank Billings has returned from Mackinac.

IOWA.

The new Mercy Hospital, Fort Madison, was opened this week.

Dr. J. B. Wilson, Ottumwa, is suffering from a severe attack of appendicitis and is at the Ottumwa Hospital.

An emergency hospital is to be provided for Marshall County in Marshalltown. The supervisors have agreed to fit up and equip rooms and an operating room, and the city council of Marshalltown will co-operate.

Personal.—Dr. R. H. Graham has located in Davenport.—— Dr. R. V. Henry, Hedrick, expects to engage in practice in Kellogg.——Dr. N. A. Sloan has opened an office in Pella.—Dr. Francis A. Ely, Clarinda, has moved to Des Moines.——Dr. Joel E. Morrill, Hamburg, has located in Chapman, Neb.—— Dr. Fred J. Graber, Stockport, has moved to Fairfield.

KENTUCKY.

Dr. William Kenney, Paris, is suffering from appendicitis and has been taken to St. Joseph's Hospital, Lexington.

The Louisville Pathological Society resumed its monthly meetings on September 16, after a recess during the summer months.

Communicable Disease.—Smallpox has appeared at Oakdale, and typhoid fever is said to be epidemic near Pellytown, Adair County.

Dr. Matthew K. Gwyn, U. S. M.-H. Service, stationed at Louisville, has been ordered to Manila, where he will be placed in charge of one of the new quarantine stations.

The Conclave Emergency Hospital.—The field hospital at the Triennial Conclave of Knights Templar at Louisville, received and cared for about 40 cases on the day of the procession.

Dr. Ewing Marshall, Louisville, has been selected as medical director of the Interstate Fair. He will organize a medical corps which will attend to all emergency cases during the fair.

Sale of Cocain Prohibited.—The use of cocain and similar drugs has grown to such an extent as to render some action absolutely necessary, and the city council has passed an ordinance prohibiting the sale of such drugs, except on a physician's prescription.

Unlicensed Practitioner.—An individual who has been practicing medicine for two years at Holbrook, Grant County, and who is said to be a member of the North Kentucky Medical Society, has been found to possess neither a license to practice nor a diploma, and has been fined $50 and costs.

Organizing County Health Boards.—Dr. J. N. McCormack, Bowling Green, president of the State Board of Health, and Dr. William Bailey, Louisville, have made a tour of the state organizing county health boards. They visited forty counties and intend to organize a health board in every county in the state.

Personal.—Dr. J. Crittenden Jordan, Rocky Hill, has moved to Coral Hill.——Dr. W. V. Tucker is about to move from Greensburg to Huntsville, Kas.——Dr. Harry B. Kurtz has located in Garfield.——Dr. George B. Young, surgeon in charge of the U. S. Marine-Hospital, Louisville, has returned from his vacation in the East.——Drs. H. Horace Grant, P. R. Taylor and James Vance have just returned from a hunting trip in the wilds of Wyoming.——Dr. Thomas Hunt Stucky, the newly elected treasurer of the Mississippi Valley Medical Association, and Dr. Henry Enos Tuley, the re-elected secretary, have returned to the city from Put-in-Bay.

MARYLAND.

Mortality of Baltimore.—For the week ended September 21 there were 181 deaths, being an annual rate of 18.17 per 1000. The rate for whites was 15.16 and for the colored, 34.88. Births reported, 170.

Vaccination.—The Health Commissioner of Baltimore reports a perfect rush to be vaccinated and that the health wardens are overwhelmed with work. Over 1000 vaccine points were issued in one day last week.

A severe storm on September 15 did great damage to Monteone Hospital for the Insane at Frederick. A portion of the roof was carried away and 1500 window lights were broken. Some of the hailstones drove into the buildings, breaking mirrors and glassware. The stable was wrenched from its foundation, and the corn crop was ruined.

Personal.—Dr. R. Percy Smith, of Baltimore County, has accepted a position in Baltimore Medical College, and will hereafter make Baltimore his home.——Drs. Wm. Osler, Caspar T. Gilchrist and A. Aronsohn, Baltimore, have returned from Europe.——Dr. Louis Stick, resident, and Drs. Louis Rosenthal and Albert Conroy, assistant resident physicians at the City Hospital, have resigned.

Sewer System for Baltimore.—The mayor, in a message last week to the new city council, calls its attention to the act of the Legislature of 1901 empowering the mayor and city council to provide a general sewer system for Baltimore. In the interest of the health of the community he urges that the power thus conferred be at once exercised. The act requires that the question be submitted to the people of Baltimore by a city ordinance.

Appropriations for Charities.—The total amount asked for by the Department of Charities and Corrections, Baltimore, for next year is $340,220. Of this $119,400 is for the care of the insane, $62,000 for city patients in hospitals, $34,770 for destitute and neglected children, and $106,700 for the City Almshouse. At the latter institution there is room for only 360 insane, while 405 are being cared for, including 151 colored. An increase of $15,000 over last year for the insane and of $2500 for the case of the sick is asked for. The hospitals of the city now carry more charity patients at their own expense than ever before. The board proposes to investigate the financial condition of all patients, as many of them should properly be taken care of by their relatives.

MASSACHUSETTS.

Dr. Arthur R. Perry, city physician of Somerville, has resigned.

The City Emergency Hospital, Boston, will be ready to receive patients, October 1. It is a three-story building thoroughly equipped and with a roof garden, which is rather a novelty in a hospital.

Consumptive Hospital.—Boston has now $150,000 available for the erection of a hospital for consumptives. The mayor has sent to the city council a draft of an ordinance creating a new department to deal with chronic diseases, including consumption.

Personal.—Dr. Percy H. Brigham, Dorchester, has opened an office in Brockton.——Dr. Leslie H. Hendee, Palmer, has sold his practice to Dr. J. Homer Miller, Boston.——Dr. Joseph C. Boulay, Three Rivers, has moved to Ware.——Dr. Henry C. B. Snow, Ashland, Buzzard's Bay, has located in West Somerville.

Hospital Bequests.—By the will of the late Charles H. Hayden, Boston, $100,000 is given to the Massachusetts General Hospital and $50,000 each to the Children's Hospital and the Massachusetts Eye and Ear Infirmary. Clinton Hospital receives $2000 by the will of the late John W. McNamara, of Clinton.

MINNESOTA.

Hamline University, Medical Department, Minneapolis, held its opening exercises, September 18. Professor Charles F. Dight delivered the address.

Swedish Hospital.—The contract for the new Swedish hospital, Minneapolis, has been let for $24,000, not including the plumbing or the heating plant.

Dr. Robert I. Hubert, St. Cloud, has been bound over to the grand jury on the charge of having failed to report cases of contagious disease to the local board of health.

Smallpox is under control in the northern part of the state, but in the southern portion the disease is more prevalent. Dexter, in Mower County, and Okaberia, in Jackson County, have been placed under quarantine.

Personal.—Dr. Edmund B. Johnston, Fairmont, intends to locate in Benson.——Dr. Albert W. Shaw, Everleth, has gone to Buhl, where he has been appointed physician of the Drake and Stratton works, and also for several mines in the vicinity.

Seek Sanatorium Site.—Drs. H. Longstreet Taylor, St. Paul, George S. Wattam, Warren, and James L. Camp, Brainerd, the commission appointed by the governor to look for a suitable site for a state sanatorium for consumptives in the northern woods, is visiting Grand Rapids, Cass Lake and Bernidji.

MISSOURI.

Ensworth Medical College, St. Joseph, opened September 16, with an enrolment of 58 students.

Personal.—Dr. Irwin Phillips, Lead Mine, is seriously ill with blood-poisoning contracted during an operation in June last.——Dr. Charles E. Houser has moved from Gentry to Burlington.

Changes at State Asylum.—The board of managers of the State Hospital for the Insane, No. 3, Nevada, met September 3, and elected Dr. James W. Smith, Pleasant Hill, to succeed P. B. Stratton. Drs. L. M. Thompson, Atlanta, and J. M. Angle, Smithton, were elected assistant physicians.

MONTANA.

St. Peter's Hospital, Helena.—The work on the new $60,000 building for the hospital will begin soon.

New County Hospital.—The commissioners of Silver Bow County have decided to erect a new county hospital at Butte, to cost $20,000.

Personal.—Dr. Ellis P. Townsend, Billings, formerly local surgeon of the Burlington railway, has been appointed physician to the Crow Agency.

The Detention Hospital recently erected for Lewis and Clarke County, at Helena, at a cost of $4000, has been accepted by the county commissioners.

Railroad Hospital Enlarged.—The Northern Pacific Railway hospital, Missoula, has had an addition constructed which nearly doubles the capacity of the institution, and which will be ready for occupancy, October 1.

Vaccination Not Compulsory.—The attorney-general of the state has decided that the State Board of Health has no power to enforce vaccination of school children. If any authority exists it is under the general police powers of the state exercised for the purpose of preventing the outbreak of contagious diseases.

NEBRASKA.

Dr. B. B. Hauser, formerly located near Admah, has purchased the office and residence of Dr. William O. Wisner, Hooper, and will locate there.

Fatal Fire at Norfolk Asylum.—Eight of the eleven buildings of the State Insane Asylum were destroyed by fire, September 23. The building contained 300 insane people, seven of them women, who were rescued with the utmost difficulty. Two patients were fatally burned and a third was seriously burned and slightly injured. The fire was discovered about 3 o'clock in the morning in a subcellar, and burned slowly until about 10 o'clock. The entire building is gutted, but the walls are standing and apparently in good condition. The loss to the state is $150,000, with no insurance. The institution is situated two and a half miles from Norfolk and depends for fire protection upon its own water system. The supply of water gave out very soon after the pump was started, and from that time on the hospital force, together with the fire department and hundreds of willing spectators who had responded, were compelled to stand idle. The worthlessness of the fire protection at the institution has been repeatedly made the subject of reports by former superintendents, but legislatures have failed to act.

NEW HAMPSHIRE.

Dr. James T. Greeley, Nashua, secretary of the State Board of Medical Examiners, has sailed for Europe, where he will spend several months in study.

Personal.—Dr. Orlando B. Douglas, New York, who has spent his summers in Suncook for ten years, has opened an office in Concord.——Dr. E. L. Sawyer, Exeter, has sold his residence to Dr. Alice G. Chesley, and will retire from practice.

NEW JERSEY.

Typhoid fever is said to be epidemic in Dunellen.

Isolation Hospital for Newark.—The Common Council has voted $20,000 for the construction of a new isolation hospital for Newark.

Middletown's Pustulous Disease.—A contagious pustular epidemic disease has broken out in Middletown, which is declared not to be chicken-pox or smallpox. The disease is called new and mysterious.

Diploma Vendor Surrenders.—"Dr." J. W. Norton Smith, whose Central University of Medicine and Science in Jersey City, of which he was president, came into disrepute because it granted degrees of various grades at $5 apiece, or two for $7.50, and who has been wanted for almost a month by the police officials, surrendered himself, September 13. He was promptly arraigned in the First Criminal Court and released under $200 bail. It is expected that he will immediately call a meeting of the stockholders of his university and dissolve the institution. By this practical forfeiture of his charter, the university having been legally incorporated, the prospect of further harm in the matters of undeserved degrees will be wiped out and the case will be dropped.

NEW YORK.

French Hospital.—The French Benevolent Society is to build a hospital in New York City to cost $500,000. It will be a stone and brick structure, seven stories in height, absolutely fireproof, and will accommodate 150 patients.

Prof. Simon Harry Gage, Cornell University, gave some demonstrations, with a projecting microscope, before the Pathological Section of the Buffalo Academy of Medicine, of embryological specimens, including some abnormalities.

The Austro-Hungarian Hospital, with thirty beds and a dispensary, was opened for the reception of patients, September 16. The medical staff is composed of Drs. John Guthman, Ignatz M. Rottenberg, Max Landesmann, Bartholomew Lefkowics and others.

Personal.—Dr. Eugene E. Heriman, resident physician at the Albany County Hospital, has resigned.——Dr. Thomas Cunningham, interne at the Albany Hospital, has resigned on account of ill health, and Dr. Clayton K. Haskell, Saratoga, has been appointed his successor.——Dr. David R. Bowen, Wellsburg, will soon locate in Marcellus.

New Medical Directory.—The Medical Directory of New York, New Jersey and Connecticut for 1901, published by the New York State Medical Association, has just been issued. It comprises more than nine hundred pages, containing the names and addresses of physicians legally registered in New York, New Jersey and Connecticut, and much additional information valuable to the profession. The total number of names contained in the lists of physicians is 12,644, of which 10,112 are in New York, 1472 in New Jersey, and 1060 in Connecticut.

NORTH CAROLINA.

Smallpox is said to be raging in Granville County and quarantine has been established.

Transfer of Hospital.—The James Walker Memorial Hospital, Wilmington, has been formally transferred to the city and New Hanover County. Dr. Thomas Meares Green has been elected superintendent and physician in charge.

Personal.—Dr. R. T. S. Steele, Roberdel, has been appointed assistant surgeon of the Atlantic Coast Line with headquarters at Wilmington.——Dr. A. C. Woodruff, Sparta, has located in Independence, Va.

New School of Medicine.—The executive committee of the Wake Forest College board of trustees, which met at Raleigh recently to consider the question of the establishment of a school of medicine in connection with the college, has decided to postpone action in regard to the matter until next June.

NORTH DAKOTA.

Smallpox.—It is reported that eight cases of smallpox have developed among the laborers on the Northern Pacific Railway, west of Bowdon.——Carrington has one case of smallpox securely quarantined.

To Build Isolation Hospital.—Fargo and Cass County will, jointly, build an isolation hospital. It will be modern in every respect, with sewer and water connections.

Vaccination.—The Board of Education of Valley City has decided that pupils of the public schools must be vaccinated before being permitted to enter, unless satisfactory evidence is given that they have been properly inoculated heretofore.

OHIO.

Scarlet fever is reported to be epidemic in La Rue, and the schools of that village have been closed.

Medical Staff for Fall Festival.—The Medical Relief and Emergency Hospital of the Fall Festival, Cincinnati, will be under the charge of Dr. John L. Davis, medical director, assisted by eighteen physicians who have volunteered their services without pay.

More Room Needed.—The Protestant Hospital, Columbus, is so overcrowded that the trustees contemplate enlarging the hospital, and for the time being will obtain a house for the nurses, which will permit the fifteen rooms now used by them to be given to patients.

Personal.—Dr. J. Phil. Schilling has moved from Louisville to Canton, where he will be associated in practice with his son, Dr. Charles E. Schilling.——Dr. S. D. Good, Newton Falls, has sold his practice to Dr. H. McA. Mealy, of Palmyra, and will take six months' post-graduate work in New York.——Dr. Thomas A. Mitchell, Owensville, has moved to Cincinnati.

OKLAHOMA.

Smallpox has again appeared at Guthrie.

Certificates Granted.—As a result of recent examinations, the Superintendent of Health of the territory has granted certificates to practice to 27 practitioners.

Appointments.—Dr. Richard Foster, Hobart, has been appointed superintendent of the Board of Health of Kiowa County.——Dr. Richard W. Brown, Kingfisher, has been appointed superintendent of the Board of Health of Kingfisher County.

County Boards of Health.—The superintendent of the Territorial Board of Health has appointed practically all the members of the various county boards of health, and urges the necessity of a joint session to confer on measures against contagious disease.

SOUTH CAROLINA.

Rhett Memorial.—The friends of the late Dr. R. Barnwell Rhett, Jr., Charleston, propose to endow a room in the St. Francis Xavier Infirmary in memory of him, which shall be known as the Robert Barnwell Rhett room.

Personal.—Dr. James H. Downey has removed from Pacolet to Gainesville, Ga.——Dr. J. Mercier Green, Charleston, has been elected health officer, vice Dr. H. B. Horlbeck, deceased. ——Dr. William Mazyck has been elected dispensary physician of Charleston, vice Dr. Henry Horlbeck, resigned.

Decision on Medical Law.—In reply to a question regarding the eligibility to practice of a three-year graduate, the attorney-general has decided that the amendment to the medical law "does not refer to a graduate who has taken a four years' course, but refers to and is descriptive of a 'college which has a four years' course of instruction.' The limitation applies directly to the institution. When the college conforms to these qualifications and issues a diploma to a graduate, whether he has attended three years or five or six years, the mere granting of the diploma and the evidence of his standing having been made to the State Board of Examiners the graduate is exempt from the provisions of section 970, volume I. of the revised statutes of 1893, and the criminal statutes above cited do not apply to such a graduate."

SOUTH DAKOTA.

St. Luke's Hospital, Aberdeen, is practically completed and will be ready to receive patients in a few days.

Smallpox has broken out afresh on the Sisseton reservation and has been carried from there to Poplar Creek.

Dr. Tillison J. Wood, Huron, has been commissioned assistant surgeon in the South Dakota National Guard with the rank of first lieutenant.

Compulsory Vaccination.—The Board of Health of Mitchell has passed a resolution providing that all persons residing in the city of Mitchell, and all persons attending school in said city who have their homes elsewhere, shall be vaccinated as a preventive of smallpox before Oct. 1, 1901. Provided that all persons who furnish a physician's certificate of having had smallpox, or of successful vaccination, during the three years last past shall not be required to comply with this order.

TENNESSEE.

City Hospital to be Finished.—The Knoxville City Council has passed over the mayor's veto, an appropriation of $2000 to complete the new City Hospital, which will be ready to receive patients about October 15.

Oil vs. Mosquitoes.—The health officer of Knoxville has commenced a crude oil crusade against mosquitoes in and around Knoxville. He proposes to cover all pools with crude oil once a month until cold weather comes.

Gift for Meharry Medical College.—The Meharry heirs have pledged a gift of $10,000 for Meharry Medical College, Nashville, and have also promised to endow a ward in the new hospital to be built in connection with the college.

Communicable Diseases.—Scarlet fever has appeared in several localities in South Weakley County, in Side View, Sumner County and in Charleston. In the latter place the schools have been closed and a rigid quarantine instituted.—— Diphtheria is raging near Indian Mound, Stewart County. ——Whiteville has had three cases of smallpox of mild type.

Personal.—Dr. Frank A. Jones, Memphis, is convalescing at Tate Spring, East Tennessee.——Dr. Gideon H. Morgan, Rogersville, has moved to Fountain City.——Dr. Walter S. Nash has resigned from the chair of bacteriology in Tennessee Medical College, Knoxville, and has been succeeded by Dr. W. R. Lockett.——Dr. Howard Gunn, Gadsden, has located in Guntersville.——Dr. Marshall M. McRee, Trenton, has opened an office in Grapevine, Texas.

UTAH.

Dr. George W. Middleton, Paragoonah, starts for Europe this month to take post-graduate studies in Germany.

Salt Lake City Hospitals.—The St. Mark's and the Hospital of the Holy Cross are recipients of $10,000 each, given without conditions, by General Palmer and George F. Peabody.

Four emergency hospitals are to be erected in the mining districts—one each at the Sunnyside, Castlegate, Winter Quarters and Clear Creek mines. For this purpose $20,000 has been donated by the former president and vice-president of the Rio Grande Western Railway, General William J. Palmer and George Foster Peabody.

VIRGINIA.

Smallpox.—Another case of smallpox has developed in Lynchburg, the first in several months.

A Pasteur department has been opened at the University College of Medicine, Richmond. It is in charge of Dr. Adolph G. Hoen, formerly of Johns Hopkins University, Baltimore.

Personal.—Dr. Thomas R. Marshall has returned to Bedford City after two years of service as surgeon of the Forty-first Volunteer Infantry in the Philippine Islands.——Dr. Samuel I. Conduff, Hollins, has moved to Salem.

New Physicians.—At the examination recently held at Staunton by the State Board of Medical Examiners, 102 applicants passed. Of these 28 were graduates of the University College of Medicine, Richmond; 18, of the University of Virginia, Charlottesville, and 22 of the Medical College of Virginia, Richmond.

WASHINGTON.

Unlicensed Practitioners.—Dr. W. H. Fahnestock, Walla Walla, and Dr. Edmund Bunton, Spokane, have been arraigned for practicing medicine without a license.

Personal.—Dr. Charles E. Case, Tacoma, has gone to New York to take a post-graduate course in medicine.——Dr. Ella J. Fifield, district supreme medical examiner of the L. O. T. M., has returned to Tacoma from Port Huron, Mich.

New Hospitals.—A permit has been issued for a three-story addition to Sacred Heart Hospital, Spokane, to cost $9000.——The directors of St. Luke's Hospital, Spokane, expect to begin work on the new $100,000 building this fall.—— Endowment of free beds at the Seattle General Hospital was secured at a mass meeting held recently at the Opera House, at which a handsome sum for this purpose was subscribed.

GENERAL.

Professor Czerny, of Heidelberg, is making a prolonged visit in the United States. He is at present in New York State.

Capt. H. Eugene Stalford, assistant-surgeon U. S. army, Manila, has been appointed attending physician to the civil employes of the Philippine Islands.

Isolation of Leprosy in Hawaii.—A stockade has been built around the buildings containing the lepers at Molokai Island. The Board of Health adopted this method to prevent relatives and friends from coming into personal contact with members of the colony.

Dr. Dedrick Left in the Arctic Regions.—Dr. T. S. Dedrick, of the Peary Arctic expedition, resigned, owing to a dispute with Lieutenant Peary, and went ashore at Etah, the headquarters of the North Greenland tribe of Eskimos and the farthest northern settlement. He refused to return to the arctic steamer *Erik*, and was supplied with arms and ammunition.

Beck's Letters from America.—The *Munich Med. Wochenschrift* is publishing a series of letters from Carl Beck, of New York, describing the St. Paul meeting of the American Medical Association and the medical trip to Yellowstone Park. They are bright and entertaining, and give a very good idea of the proceedings at the meeting and the views presented by men whose names are almost as familiar across the water as at home. He makes merry over the incident of the "Frauenrechtlerinnen and the canteen," which has particular zest for his German readers, as the "woman's rights movement" in any form meets but little sympathy from the profession there.

Dr. Rixey Surgeon-General of the Navy.—It has been reported that Dr. Presley M. Rixey, who during the last few months has become prominent as the physician of President and Mrs. McKinley, will be appointed surgeon-general of the Navy at the expiration of Surgeon-General Van Reypen's term of service. This will not be until Nov. 14, 1902, but his commission as surgeon-general expires December 28 next, and it is possible that Dr. Rixey's appointment may be expected then. Dr. Rixey has been the physician of President and Mrs. McKinley since 1898, succeeding Dr. Leonard Wood when the latter organized the rough riders. He was born at Culpepper, Va., in July, 1852, was graduated from the Medical Department of the University of Virginia in 1873, and entered the Navy as

assistant-surgeon in January, 1874. For the first three years he was on various vessels belonging to European, South American and home squadrons, but since 1887 he has been on special duty in Washington nearly all the time.

The President's Case.

TRIAL OF CZOLGOSZ.—The trial of Czolgosz, the assassin of President McKinley, is now ended and the prisoner has been found guilty of murder in the first degree and sentenced to death. At the request of the Erie County Bar Association, Dr. Carlos MacDonald, New York, examined the prisoner and pronounced him sane. His sanity has been also proclaimed by Drs. Joseph Fowler, Floyd S. Creyo, and James W. Putnam, who examined him at the request of the prosecuting attorney. Dr. Harvey R. Gaylord was the first medical witness. He testified that he performed the autopsy and stated that back of the stomach was a track filled with dark fluid matter into which he could insert the tip of his finger. The pancreas was involved; the cause of death was the gunshot wound and the search for the bullet was not continued after the cause of death had been determined. He asserted that the stomach had been affected by the gangrene and that the kidney showed changes which could have been caused only by wounds during life. The wounds in the stomach were not necessarily the cause of death, but the fundamental cause was the absorption of the broken-down matter in the pancreas. Dr. Herman Mynter described the operation, which he, together with Dr. Matthew D. Mann, performed upon the President. After the wound in the stomach had been closed, as the President's temperature was rising, it was agreed by the physicians that the further course of the bullet should not be followed, and on their advice the President was removed to the residence of Mr. Milburn. Dr. Mynter stated the cause of death primarily as gunshot wound, but that it was directly due to blood poisoning from the absorption of poisonous matter caused by gangrene. He stated that the pancreatic fluid escaped, not by reason of direct injury to the pancreas, but by deterioration of the tissues surrounding it. He stated in addition that the physicians who performed the autopsy tried for four hours to locate the bullet and that the President's representative refused to allow the autopsy to proceed further or to permit more mutilation of the body, which would have been required. Dr. Matthew D. Mann, who operated on the President, testified that it would have been necessary to remove the bowels from the abdominal cavity in order to find the track of the bullet back of the stomach, and that this procedure would probably have resulted fatally, as the President had already begun to grow weaker as the result of the operation. He stated as the cause of death, gunshot wound in the stomach resulting from the bullet that passed through both the walls of that organ and lodged in the muscles of the back.

BULLET NOT POISONED.—The theory that the bullet causing the wound which killed President McKinley was poisoned or was steeped in a virulent culture of pyogenic bacteria, is disproven. City Chemist Hill, who holds the professorship of chemistry at the Medical Department of the University of Buffalo, reported to the prosecuting attorney that the bullets examined by him chemically and bacteriologically revealed nothing.

EXAMINATION OF CULTURES IN PROGRESS.—The examination by Drs. H. R. Gaylord and Herman G. Matzinger of the cultures taken at the autopsy on the President, as also of sections, is still in progress. As soon as completed the findings will be embodied in the official report of the case.

CANADA.

An examination for barbers is favored by the Trades Congress which has been in session at Brantford, Ontario, during the past week. The Federal Government will be petitioned to enact a law making it necessary for all barbers to procure a certificate of three years' apprenticeship and pass an examination before a board appointed by the government, and that the government establish a proper system of sanitary inspection for barbers' shops.

Prof. Goldwin Smith has donated $10,000 for the library of the University of Toronto. The gift is a timely one in view of the straightened circumstances of the university. The gift will manifest the esteem of Dr. Smith in the university and will also pay tribute to the memory of the restorer of English learning, the present time being the millenary of King Alfred, who is the patron hero and legendary founder of Professor Smith's old college at Oxford.

The Death of the President.—As evidencing the high esteem and affection felt for the sorrowing nation to the south of us, all Canada took on a mournful aspect on the day the body of the late Chief Magistrate of the United States was consigned to its final resting-place. Lord Minto, the Governor-General, by official proclamation, declared that the day should be solemnly observed throughout the Dominion and that His Majesty's subjects should abstain from all forms and sorts of amusement.

"Christian science" Suffers in the Toronto Police Court.—What is described as the hottest attack ever made on "christian science" in the city of Toronto took place on the morning of the 19th inst., during the preliminary investigation in a charge against a father that he had killed his little 6-year-old son by omitting to send for a physician when he was suffering from diphtheria. Police Magistrate Denison did his best to get a description of the "silent" treatment, but was unsuccessful. The crown attorney who was prosecuting the enquiry characterized the fake as follows: "I have no hesitation in saying that this 'christian science,' as set out in Mrs. Eddy's book, is the most damnable blasphemy I ever heard or read." The crown attorney then proceeded to read extracts from the book, when he was interrupted by the magistrate enquiring: "Is that woman still at large?" "Yes, she got this message from God copyrighted." "Oh," said the magistrate, "that shows she's sane enough in one respect." The magistrate and the crown attorney having strongly expressed themselves that this sort of treatment on young children must be stopped, the father was committed for trial at the coming sessions.

Royalty at McGill.—His Royal Highness, the Duke of Cornwall and York, opened the new medical buildings of McGill on the 19th inst. The formal proceedings were opened with an address from the Dean, Dr. Craik, who offered on behalf of the Medical Faculty, teachers, students and workers, a most respectful welcome to their Royal Highnesses. In this address Dr. Craik gave the history of McGill since 1824, when the total number of students was only 25. At the time of its incorporation with the University, the year 1829, the number had only reached 30. Last year the number of students enrolled was 490. In 1824, four professors comprised the teaching staff; now there are 70. The present new buildings are given to the staff by two members of Lord Strathcona's family, Lady Strathcona and the Honorable Mrs. Howard. At the close of the address, a little casket of the labradorite—a native Canadian metal from Labrador—enclosing a key of solid gold was presented to His Royal Highness. The Duke made suitable acknowledgment for the Duchess and himself, after which he declared the buildings opened for the work set apart for them. A visit to the Royal Victoria Hospital followed this function.

FOREIGN.

Contagious Diseases in London.—Smallpox appears to be increasing in London; there are about 200 cases isolated in hospital ships. Typhoid fever is quite prevalent, due, mainly, it is said, to infected suits of khaki brought from South Africa, either for sale or as family heirlooms.

Changes at the University of Leyden.—Professor Korteweg, of Amsterdam, has accepted the chair of surgery, vacant since the death of Van Iterson. Van Walsem, the prosector at the largest insane asylum in Holland, has been appointed successor to the late Siegenbeek van Heukelom, whose works on medical ethics and medical jurisprudence have won him a reputation. The first post-graduate course in Holland has recently been inaugurated at Groningen, and Leyden will soon have one.

Death of Dr. Thudichum.—Dr. J. L. W. Thudichum died in London, September 7, from cerebral hemorrhage. He was born in Germany, near Giessen, in 1829, and studied in that city and Heidelberg, graduating at the former university in 1851. He settled in London in 1853, and devoted his attention thereafter to chemistry. In 1865 he was appointed lecturer on pathological chemistry at St. Thomas's Hospital and director of its chemical and pathological laboratory. His publications are numerous.

Steffan's Title.—Dr. Steffan, by repudiating the title of Sanitätsrath offered him, has conferred a benefit on the entire profession in Germany. He repudiated the title on account of the assessed fee of 300 marks, and the official decree withdrawing the title states that the medical profession is called upon so often in matters of public health and has had such responsibilities and obligations placed upon it in the matter of contagious diseases and the public health in general, that its members are quasi-public officials to a certain extent, and consequently, henceforth, no assessment will be made when a

title is conferred upon a physician, as when it is conferred upon a private individual.

Silver Jubilee of Prof. B. S. Schultze.—The pioneer of gynecology in Germany is celebrating this year his silver professional jubilee. The list of his works and articles on subjects connected with obstetrics and gynecology includes 139 titles. His large work on the "Treatment of Alterations in the Position of the Uterus" has been translated into several languages, and investigation by combined bimanual examination which Schultze and Hegar inaugurated, opened a new era in gynecology. He also called attention to the benefits of laminaria, and of exploratory tamponing for the detection of chronic endometritis with slight secretion. His "Manual of Midwifery" is in current use as a text-book in Russia, Spain, Italy and Roumania, as well as in Germany, where the twelfth edition has recently appeared. Schultze's name is best known, however, by his method of resuscitating apparently still-born infants, which is generally recognized as the most effective and most harmless method yet devised, as E. Fraenkel states in a review of his professional career, published in the last *Deutsche Med. Wochenschrift*. His father and older brother were both professors of anatomy.

LONDON LETTER.

Outbreak of Smallpox in London.

After enjoying practical immunity from smallpox for several years a severe outbreak has occurred. A week ago there were 15 cases on the hospital ships; now there are between 60 and 70. The outbreak has practically developed within the last seven days and so far has been confined to the northwestern district. Thirty cases have been notified in three days. The medical officers of health are taking every precaution to hunt up the cases and by careful disinfection to prevent the spread of the disease. In connection with this, as with a previous outbreak, the fact has become apparent that comparatively few medical men are competent to diagnose smallpox in its earliest stage, because the disease has become so rare that most of them have never seen a case. There has been only one death, and the outbreak is judged to be very mild. London is not regarded as a place of origin of smallpox and it is believed that this outbreak will be traced to some external source.

Koch Criticised.

A good deal of adverse criticism has been showered on Professor Koch since the Tuberculosis Congress. At the autumn conference of the Sanitary Inspectors' Association, which has just been held, Sir James Crichton Browne read a paper on "Tuberculosis." He said that the sound of Dr. Koch's voice had hardly died away in St. James' Hall when Lord Lister uttered words of protest. Since then there had been a steadily rising tide of opposition and a growing accumulation of evidence against Koch's doctrine. This great Nestor was premature in his announcement and unfortunate in the choice of an opportunity. The question would, he had no doubt, be settled by a government inquiry. Meanwhile, it would be wise for sanitary inspectors to act as if Koch had never spoken.

Prevention of Lead Poisoning in Pottery Glazing.

According to a report made to the government by Professor Thorpe, the use of raw lead compounds in glazing pottery is no longer necessary, and this source of lead poisoning can be eliminated. Fritted lead, which is produced by fusing silica or other material with raw lead so as to form a definite compound—silicate or boro-silicate of lead—answers all purposes. "Fritts" may be soluble or insoluble in acids. The former are little less poisonous or soluble than raw lead itself; the latter are almost innocuous. The proportion of lead in fritts may vary widely—from 15 to 55 per cent.—without any increase in the solubility of the lead. Thus, manufacturers of pottery have a considerable margin of choice in innocuous compounds. In 1899 special rules were proposed by the Home Office: 1, that lead shall be fritted; and 2, that the fritt shall be practically insoluble in acids. A maximum solubility of 2 per cent. was suggested. The manufacturers objected and complained that they were asked to accept conditions "never before employed by any potters in the world." But Professor Thorpe points out that this standard is reached without difficulty in large works abroad. Here as in other matters the unreasonable conservatism of the British manufacturer is the obstacle. But without doubt the result of this report will be that Parliament will compel him to use only fritted lead in glazing.

Paralysis after Dislocation of the Shoulder.

At the polyclinic, Mr. Hutchinson showed the following remarkable case: The patient was a boy, aged 16, who six months previously was caught in machinery and sustained a subcoracoid dislocation of the shoulder, which was reduced about two hours later without difficulty. Loss of power in the arm followed, from which he was slowly recovering. Three months after the accident there were anesthesia of the ulnar side of the hand involving the little and ring fingers, hyperesthesia in the median area, over-extension of the metacarpophalangeal joints and flexion of the phalangeal joints, paralysis of the ulnar interossei, inability to flex the fingers or bring them together, wasting of the thenar and hypothenar eminences, and inability to oppose the thumb to the finger-tips. Passive movement and massage were used. When the patient presented himself at the clinic there were almost complete paralysis and loss of sensibility in all the structure supplied by the ulnar nerve. The fingers were flexed on the palm but could be extended. The wrist was in a condition of partial drop but could be extended at will, though only feebly. Movements of elbow were free but flexion was accomplished almost entirely by the supinator longus, which was large and vigorous, the rest of the forearm being wasted. The triceps was also vigorous, but the biceps and trachialis anticus were very weak and atrophied. Sensibility was present in all parts except in the area of the ulnar nerve, but probably it was below normal everywhere. The muscles of the upper arm were weak, except the triceps and shoulder muscles.

Mr. Hutchinson pointed out that nothing in direct connection with the dislocation would explain the paralysis. Rupture of the circumflex nerve and paralysis of the deltoid sometimes occurred, but so long as the clavicle remained intact it was extremely improbable that the brachial plexus as a whole could be injured. He inquired minutely as to the nature of the injury. The lad said that a revolving wheel seized his coat and dragged on his arm and struck it with considerable force in the upper third on the inner side, where a large bruise followed. Mr. Hutchinson concluded that the nerve trunks in the upper arm were severely bruised, the ulnar nerve being almost disorganized, and the musculo spiral nerve being struck after it gave off its branch to the supinator longus. The incompleteness of the paralysis and the steady progress towards recovery fitted well with this suggestion. He referred to more or less similar cases of paralysis of the nerves of the arm after dislocation of the shoulder which had been recorded by Duchenne. But this writer gave no details of the nature of the injury which caused the dislocation, and though he was aware of the difficulty of explaining the paralysis and quoted Malgaine as to the impossibility of injuring the brachial plexus by a dislocation of the shoulder, he suggested no alternative hypothesis.

Eradication of Rabies from England.

According to the government report recently issued, "During 1900 no case of rabies was confirmed in England or Scotland, and it may be stated with some confidence that the disease which has been present for so many centuries has been eradicated." During the last four years rabies has been confined to the Welsh counties of Brecon, Caermarthen, and Glamorgan, in which six cases in dogs, four in cattle and one in a horse occurred. Credit for this splendid achievement is due to Mr. Walter Long, minister for agriculture, who has enforced an order for muzzling dogs in the face of much opposition. The gratitude due to him and the veterinary department is more apparent when it is remembered that in France 2000 to 3000 cases are annually reported, and that in Italy nearly five times as many cases were declared in 1900 as in 1899; that in Belgium the disease is on the increase; that in India and America it is still present.

Plague.

At the Cape, for the week ending August 17, only 3 fresh cases were recorded, 2 in colored persons and one in a native. The total cases up to August 17 were as follows: Cape Peninsula 357, Port Elizabeth 18, and all other places 2.

Correspondence.

The Septic Tank.

VANCOUVER, B. C., Sept. 14, 1901

To the Editor:—In your issue of August 24, you refer to the sewage disposal at Stratford, Ont., which I understand is by means of the septic-tank system. Your remark that this is the only system of its kind in Ontario, and probably in Canada, is not quite correct, for I am sure that the city of Van-

couver, B. C., was the first to introduce it into the Dominion. The septic-tank system has been in operation in Vancouver for six months and is giving the very best satisfaction. The neighboring city of Victoria is also installing it, and Seattle, Wash., is observing its operations closely with the view of adopting it in the near future, if in further time its success is fully demonstrative, which I thing is certain. So many inquiries have been made at the City Hall here about the workings of it that our city engineer, Col. T. H. Tracy, has not time to answer them all, and has published the following pamphlet on the subject:

THE SEPTIC TANK.

The economical disposal of sewage is a problem which has engaged the attention of engineers and scientists for a great many years with varying results.

Sand filtration, sewage farming, chemical precipitation, bacterial filtration are the most notable processes tried and found wanting. The objection to each of these processes are briefly as follows:

Sand Filtration, continuous or intermittent.—The area of suitable sand ground required is usually difficult to obtain in the neighborhood of a city, and if obtainable the elevation or position is such as to necessitate pumping and consequent continuous expense.

Sewage Farming is growing into disuse for principally the same reasons.

Chemical Precipitation is expensive, both on account of the cost of the chemicals and handling and also the dealing with the "sludge" which is produced in excessive quantity. The effluent is also liable to become offensive.

Bacterial Filtration.—Considerable success has attended this method of treating sewage, but taken alone there are objections to it. In treating raw sewage the filters become clogged and require to be of considerable size and consequently expensive construction.

Septic Tanks.—The most effective method of treatment of sewage so far known is the Septic Tank, either used alone where the discharge is into salt water or where a high degree of purification is not necessary or in conjunction with bacterial filters where the effluent must be comparatively pure. The tanks are usually constructed of concrete, arched over and of a capacity equal to 18 to 24 hours' flow of sewage with a depth of about 5 feet, the inlet and outlet pipes being turned down to a depth of about 18 feet below the surface, so as to leave the scum, which forms on the surface, and in which the bacterial action is carried on, undisturbed. After the tank has been in use about a week a brown scum forms on the surface, which gradually increases, until the full action is attained. In this scum the action of what are known as anaerobic bacteria goes on, the greater part of the sewage being liquefied and a very small deposit resembling black ashes being deposited: that about 90 per cent. of the organic matter in suspension and about 30 per cent. of that in solution are removed and that the deposit does not require to be removed for several years. The practical result undoubtedly is that the offensive matter of the sewage is destroyed and the effluent is sufficiently clear for discharging into salt water or where a high degree of purification is not necessary.

Where discharged into a running stream or where greater purification is desirable a small bacterial filter or set of filters may be added. In such a case much smaller area of filter is necessary than if filters alone are used, as the effluent from the septic tank will go through at least four times as fast as the raw sewage, and the filter bed is not liable to be clogged.

The Vancouver Septic Tanks are three in number, designed for populations of 5000, 3000 and 2000, respectively, and were constructed in 1900 from plans furnished by the Septic Tank Syndicate, the first being put in operation about Jan. 1, 1901, and the others a month or two later. The results so far (August) are quite satisfactory, though the quantity of sewage passing through is not such as to make the conditions most favorable for the development of bacterial action. In one of the tanks near the Crematory the scavengers have been dumping night soil to the extent of five or six loads a night, and, though the last tank to be put in operation, the effluent is the clearest.

There have been no analyses yet made, either of the sewage or the effluent, but the practical effect of the bacterial action is very apparent. There is no smell from the tanks or the effluent. The earth has been filled over the tanks, leveled and seeded, so that the appearance of the surface is not unsightly or offensive in any way.

Some slight changes have been made in the plans furnished by the Syndicate; in order to avoid the use of wood covering for the inlet and effluent channels the concrete walls having been continued up and arched over, leaving only the necessary manholes appearing on the surface.

The above is a report I obtained to-day from our city engineer. Yours respectfully, W. J. McGUIGAN, M.D.

Value of Rest in Pulmonary Tuberculosis.

COLORADO SPRINGS, COLO., Sept. 13, 1901.

To the Editor:—A very interesting letter from Dr. Chas. Denison appears in the columns of THE JOURNAL, of August 31.

It seems to me, however, that he, as well as many others who speak of the treatment of pulmonary tuberculosis, voices a deeply-rooted error when he says in the concluding paragraph of his letter "they are all coming around to the same belief . . . namely, pure air and an *active* (italics mine) outdoor life in that climate where it can be had the easiest and most comfortably."

Having myself been the victim of pulmonary tuberculosis for more than seven years past and becoming thereby deeply interested in all that pertains to the therapeutics of this disease and watchful of all procedures for its amelioration in others as well, I feel that the subject of exercise in this condition ought to be settled without much difficulty. In no other form of tuberculosis is an active functionating of the part affected permissible. In tuberculosis of hip, knee, spine or any other joint, rest is of prime importance. In glandular tuberculosis anything like massage is contra-indicated, and who would be daring enough to advocate systematic thinking as a therapeutic measure in tubercular meningitis?

If once a clear conception of the difference necessary in outlining treatment for those predisposed to tuberculosis and those who already have it actively present is grasped, I believe the present haziness on the subject of exercise will disappear.

As a prophylactic measure in those who by reason of inheritance, environment or poor anatomic development are predisposed to pulmonary tuberculosis, exercise of the chest and lungs is of undoubted advantage. When, however, an active process is present in the lungs the quieter such organs can be kept the better.

Soft, weak muscles are made firmer and stronger by systematic exercise. If such muscles become the seat of an inflammatory action no sane physician would prescribe exercise in any form for them.

I fail to see why the analogy is not fairly applicable to the lungs. If the lungs are sluggish, the pulmonary breath sounds are feeble, especially if the chest is contracted and the family history for pulmonary troubles is bad, by all means prescribe graded and systematic pulmonary gymnastics; but, on the other hand, when tuberculosis has already started in the lungs let us follow the rational methods used for treating tuberculosis elsewhere, by putting the lungs as nearly at rest as possible. I am well aware that not infrequently but one lung is affected, and when this is the case pulmonary gymnastics, while benefiting and strengthening the healthy lung, damages the one that is diseased, and occasionally the benefit is greater than the harm. I am, however, strongly of the opinion that generally in such cases the evil exceeds the good.

Full diet, fresh air, day and night, careful attention to the hygiene of skin and bowels, and rest, including a large amount of sleep (ten hours or more), with occasional counter-irritation to chest and otherwise symptomatic treatment when called for, sums up, it seems to me, what may be termed a safe basis for the treatment of pulmonary tuberculosis.

I may add that these are not merely theoretical considerations but are the results of observations on many afflicted, myself included. Truly yours, W. F. MARTIN, M.D.

A Use for Criminals.

PALMERSTON, ONTARIO, Sept. 20, 1901.

To the Editor:—President McKinley has been laid to rest and his assassin remains to be dealt with by the law as a nuisance to society. Before he is executed might he not be used for some useful purpose? Recent investigations in tuberculosis and cancer, two of the world's greatest scourges, have shown the necessity of the use of a human subject for further research. Already a physician has offered himself as a subject to test whether bovine tuberculosis is transmissible to man. The necessary experiments would not entail any great suffering on the criminal, and public opinion generally would be thoroughly in accord. I can see no objection to this use of desperate criminals. This practice was in vogue when Jenner introduced vaccination to the world, but in the nineteenth century seems to have fallen entirely into disuse. W. R.

Nerve Nostrums and Their Dangers.

SONYEA, N. Y., Sept. 21, 1901.

To the Editor:—The undersigned is preparing a paper on "Nerve Nostrums and Their Dangers," by request of Dr.

George F. Butler, Chairman of the Section on Materia Medica, Pharmacy and Therapeutics, of the American Medical Association, for the June, 1902, meeting, and would be glad to have physicians and others send him samples or literature of such nostrums coming under their notice, or tell him of them and where they may be procured.

WM. P. SPRATLING, M.D.,
Craig Colony for Epileptics, Sonyea, N. Y.

Married.

GEORGE MASON CREEVY, M.D., to Miss Lucy Morris Ellsworth, both of New York, September 12, at New Hartford.

EMIL GRASSER, M.D., to Miss Bessie Clay, both of Louisville, last April.

FRANKLIN JEROME HALL, M.D., Dallas, Tex., to Miss Rowen Mary Russell, Winchester, Mass., August 28.

JOHN T. HUBEL, M.D., to Miss Mary Engle, both of Detroit, Mich., September 2.

LEE WEBER, M.D., Davenport, to Miss Annie Louisa Corner, Des Moines, Ia., September 12, at Des Moines.

WILLIAM B. S. RICHARDSON, M.D., to Miss Birdice Blye, both of Chicago, September 18.

HOWARD A. IJAMS, M.D., to Miss Mae Armstrong, both of Knoxville, Tenn., September 12.

W. H. JONES, M.D., to Miss L. E. Griffitts, both of Unitia, Tenn., September 7.

LEROY W. KING, M.D., to Miss Marion Allen, both of Lowville, N. Y., September 13.

GEORGE L. MARION, M.D., Elgin, Ill., to Miss Berg, Chicago, September 3, at the home of the bride.

JOSEPH A. MORRIS, M.D., Wilton, N. C., to Miss Lizzie Reid Martin, at Roanoke, Va., September 3.

ERNEST S. REEDY, M.D., to Miss Josepha Mae Ator, both of Bloomington, Ill., September 5.

JAY G. ROBERTS, M.D., to Miss Louise Carnahan, both of Hastings, Neb., September 4.

F. CONGER SMITH, M.D., New York, to Miss Kate Comstock, Topeka, Kan., September 3, at the home of the bride.

JAMES E. TAYLOR, M.D., to Miss Martha J. Neal, both of Richmond, Ind., September 12.

E. OTIS SMITH, M.D., to Miss Eugenia Bradley, both of Cincinnati, September 4.

WILLIAM SIDNEY THAYER, M.D., to Miss Susan C. Read, both of Baltimore, September 3.

GEORGE HALLECK WHITE, M.D., to Miss Harriett King Ricker, both of Rochester, N. Y., September 5.

LEOPOLD SCHILLER, M.D., to Miss Charlotte Miller, both of Milwaukee, September 24, at the home of the bride.

Deaths and Obituaries.

William F. Holt, M.D., Jefferson Medical College, Philadelphia, 1857, who had gone to New York for medical treatment, died suddenly at that place, September 10, aged 65. He was born in Georgia, educated at the State University and had been in active practice at Macon for the last forty-four years, with the exception of the time he served as a surgeon in the Civil war. He was several times chosen president of the Georgia State Medical Association, having first been elected in 1882, and in 1890 was a delegate to the International Medical Association, which met at Paris that year. He was for ten years a member of the Board of Education, served for twenty-three years as physician for the Academy for the Blind, and was physician for the Methodist Orphans' Home for twenty-five years. He had served as chairman of the medical board of the City Hospital since its organization, and he was a member of the American Medical Association. The Macon Medical Society met and voted to attend the funeral in a body and to devote the next regular meeting to a memorial meeting in his honor.

Josias A. Ireland, M.D., Kentucky School of Medicine, 1851, died at his home in Louisville, September 20, from arteriosclerosis, aged 77. For the past fifty years, up to his retirement from active practice, he had been a prominent member of the medical profession in Louisville, having been president of the Mississippi Valley Medical Association in 1879, and one of the founders of the Louisville Medical College, of which he was dean and professor of gynecology for a number of years. He was also a member of the American Medical Association, American Public Health Association, and the Kentucky State and Medico-Chirurgical societies.

Benjamin M. Failor, M.D., Jefferson Medical College, Philadelphia, 1855, while returning from a night call, September 12, at Newton, Ia., where he had practiced for the past thirty-five years, was assaulted by robbers and died a few hours later as the result of his injuries. He was a native of Bucyrus, Ohio, and was a surgeon in an Ohio regiment during the Civil war. He was 76 years of age, and for a number of years had been Grand Surgeon of the Iowa department of the G. A. R.

R. Berrien Burroughs, M.D., Jefferson Medical College, Philadelphia, 1856, died, after a long illness, at Norfolk, Va., September 11, aged 68. He was born at Savannah, Ga., and educated at the University of Georgia. During the Civil war he served as surgeon in the 63d Georgia Infantry and the 4th Georgia Cavalry; at the time of his death he was chief surgeon of the Florida Division of the United Florida Veterans. At one time he was president and again vice-president of the Florida State Medical Association.

John K. Boude, M.D., University of Pennsylvania, Philadelphia, 1857, who for the past twenty years had been a member of the Board of Pension Appeals, died at Ocean Grove, N. J., September 8, aged 69. He was born and educated in Ohio, graduating from Miami University. He was an assistant surgeon of the 118th Illinois Infantry, having taken up practice at Carthage, Ill., and served through the Civil war with that regiment.

R. Bruce Wallace, M.D., Jefferson Medical College, Philadelphia, 1868, died suddenly at his home in Union, Neb., September 16. He was born in Missouri and moved to Union in 1887, after practicing for a time in Wyoming. He was a member of the Otoe County Medical Society, of which organization he was a number of times president.

Thomas A. Graham, M.D., Medical College of Ohio, Cincinnati, 1871, University of Louisville, 1872, died from Bright's disease at his home in Jeffersonville, Ind., September 14. He was a member of the Jeffersonville Board of Health, and at one time was a member of the Indiana legislature.

James W. Adams, M.D., University of Michigan, Ann Arbor, 1868, died at his home in Des Moines, Ia., September 13. He was born near Danville, Ind., and served with the 7th Indiana Infantry during the Civil war, enlisting as a private and being promoted to lieutenant.

Samuel C. Edmonds, M.D., University of Pennsylvania, Philadelphia, 1851, died at his home in Linwood, N. J., September 18, aged 72. He had practiced medicine along the coast in his county for the last fifty years.

W. T. Eignus, M.D., Rush Medical College, Chicago, 1901, who was a member of the staff of the State Insane Hospital, was drowned, September 19, by the capsizing of his skiff while hunting near Kankakee, Ill.

George W. Delap, M.D., Long Island College Hospital, New York, 1885, a deputy coroner of Brooklyn, N. Y., died at his home in that city, September 13.

Jacob Sell, M.D., Western Pennsylvania Medical College, Pittsburg, 1889, died from typhoid fever, September 10, at his home in Greensburg, Pa., aged 39.

Solomon G. Carpenter, M.D., University of the City of New York, 1845, died at his home in Chester, N. Y., September 13, aged 76.

Samuel W. McMahan, M.D., Medical College of Indiana, Indianapolis, 1879, died, after an illness of three months, at his home in Indianapolis, September 11, aged 55.

Nathaniel S. Cheeseman, M.D., Albany Medical College, 1860, died at his home in Scotia, N. Y., where he had practiced for the past thirty years, September 12, aged 67.

D. E. Newcomb, M.D., Detroit Medical College, 1885, died at his home in Carleton, Mich., September 16, as the result of a stroke of paralysis.

Charles E. Hollenback, M.D., Bellevue Hospital Medical College, New York, 1874, died at his home in Halsey Valley, N. Y., September 13, after a brief illness, aged 51.

Samuel M. Forrest, M.D., Medical Department of Washington University, St. Louis, 1877, died at his home in Renick, Mo., September 3, aged 57.

Henry A. Lamb, M.D., Vanderbilt University, Nashville, 1901, died at his home in Portland, Me., September 16, aged 24.

Book Notices.

THE MEDICAL DIRECTORY OF NEW YORK, NEW JERSEY AND CONNECTICUT. Volume III. Cloth. Pp. 914. Price, $2.50. Published by the New York State Medical Association. 1901.

The third volume of this excellent Directory is not only fully equal to the two preceding issues, but seems to be even better. While the verification of the exactness of such a book is practically impossible, except by long use, the tests we have been able to make of it have shown that it is perfectly reliable. In this issue is incorporated the names of all legally registered physicians, without regard to school of practice, which, as we understand it, has not been the case with the former volumes. This is certainly commendable. One of the functions of the New York State Medical Association is the prosecution of illegal practitioners; hence, it is important to know who have the right to practice. According to the Directory, New York State has 10,112 physicians, New Jersey 1472, and Connecticut 1060. The arrangement of the book is different from that of former issues in that all the information pertaining to each state is grouped by itself and a distinctive colored paper is used for each, so that ready reference is easy. Brooklyn is made distinctive from New York City by yellow paper being used instead of white. This, as well as in everything that the Committee has done, seems to have been with the view of making the Directory not only reliable but practical in every way. A large amount of information is given in regard to societies, hospitals, medical colleges, etc. The medical laws of New York, New Jersey and Connecticut are given in full, as well as the names of the boards of examiners, Board of Regents, etc., and other information of value to all who are now members of the profession of the three states covered. Besides the list of physicians arranged alphabetically there is also a street list, a valuable but a laborious part to arrange, the summer residences of physicians who have them, etc. The book has been well gotten up and is a credit to the Committee of the New York State Medical Association, that must have worked indefatigably to accomplish the task it assumed when it undertook to get up a directory of the Empire State, as well as of the two adjoining smaller states. The Committee should be encouraged in its work in every way possible. Every physician in the states of New York, New Jersey and Connecticut certainly will be interested enough in the Directory to obtain a copy.

EPILEPSY AND OTHER CHRONIC CONVULSIVE DISEASES; Their Causes, Symptoms and Treatment. By Sir William R. Gowers, M.D., F.R.C.P., F.R.S., Consulting Physician to University College Hospital. Second Edition. Cloth. Pp. 320. Price, $3.00. Philadelphia: P. Blakiston's Son & Co. 1901.

The early edition of Gowers' work on epilepsy was a standard work and the present one will take its place, in all respects. The statistical basis for the more general facts of the disease have been greatly enlarged and a large amount of work has been done in revision and addition to the text. The author's well-known standing as a neurologist gives weight to whatever he may say. Nevertheless, one or two minor points may be mentioned; he repeats the time-honored statement that unconsciousness is an invariable attendant on major attacks, though there is considerable evidence extant that it may not be invariable, and he is guilty of a little inconsistency when he says later that little is known of the sensations that attend severe convulsions since the patient is almost always unconscious. Dr. Gowers considers that the spontaneous cure or cessation of attacks does sometimes occur and is probably of greater frequency than writers on the condition have usually admitted, but it is not sufficiently common to be recognized as a particular element in the prognosis. In this he apparently fails to consider a large number of cases where epilepsy is a merely accidental or temporary episode in the patient's life. There are many people who under certain stress have one or more epileptic attacks, which are never repeated and the number of such is, we think, rather greater than he seems to admit. Sometimes this cessation may be due to treatment, but sometimes it is spontaneous. He also seems to underrate the danger to life from epileptic fits, though he may possibly be correct in estimating the number of such accidents as small when taken in comparison with all cases of epilepsy. If the records of insane hospitals were studied it will be found that epilepsy is a very serious matter as regards the possibility of sudden death, and in all cases it seriously complicates conditions that might not be fatal without it. In the main, however, the work is one that can be safely followed and is perhaps one of the best monographs on this disease or symptom that exists.

LES SOURDS-MUETS EN NORVEGE. La Surdi-Mutité, sa Distribution, ses Causes ses Symptoms. Son Rapport avec les Unions Consanguines, Conditions Sociales des Sourds-Muets; avec Remarques sur la Diagnose, la Prophylaxie et le Traitement de la Surdi-Mutite. Par V. Uchermann, Professeur à l'Université de Christiana. Publie par les soins de L'Etat. Première partie (texte); et 2ième partie (annexe); 116 Tableux, 2 Cartes, 1 Annexe (Cartes). Traduit du Norvegien Par Joahim Nicolaysen et Theophile Chauvin. Cloth. Pp. 550. Christiana: Alb. Cammermeyer, Editeur. 1901.

This is a most exhaustive study of deaf mutism in Norway covering the subject in all its possible relations, and discussing the theme with reference to nearly all the European literature of note on the subject. Norway would appear to afford a specially favorable field for such a study, not particularly on account of the frequency of this defect, but because of the peculiar distribution of a comparatively limited population in isolated communities often remote from routes of transportation and yet with reliable registration. The study is of especial interest therefore as giving a discussion of some questions of the etiology of deaf mutism, idiocy, etc., from data particularly adapted to throw light upon them. Among these are the questions of the effects of consanguinity of parents, which must be frequent in the isolated communities of Norway, and the effects of heredity generally in the production of these degeneracies. All these matters are very thoroughly discussed and the work will be an important one for reference on such facts. Every other etiologic factor seems also to have been taken up and judiciously handled, both as regards the analysis of the special statistics and their comparison with other data gathered elsewhere. Heredity and consanguinity, social conditions, syphilis, leprosy, age of parents, geology and climate, water supply, etc., are all considered and treated of at length. The work contains elaborate charts showing the distribution of deaf mutism, etc., in Norway, and in a supplementary volume what appears to be a complete list of the cases with a number of very interesting family trees showing the effects of heredity and intermarriage, etc. The work in its way is a monumental one that takes an important place in the literature of its subject, and in this French translation will widely extend its usefulness.

HYGIENE AND PUBLIC HEALTH. By Louis Parkes, M.D., D.P.H., Lond. Univ., and Henry Kenwood, M.B., D.P.H., F.C.S., Fellows of the Sanitary Institute and Members of the Board of Examiners. With Illustrations. Cloth. Pp. 732. Price, $3.00 London: H. K. Lewis. Philadelphia: P. Blakiston's Son & Co. 1901.

This work appearing externally under the same title as the well known Parkes Hygiene so long before the profession, is

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really a new work under joint authorship in which the older one has been taken for a basis. The book is condensed in style and while specially adapted to English readers is nevertheless one that will be of value to students of hygiene in any part of the world. It has been written especially for English practitioners who are studying for the various public health diplomas, but its convenience as a reference book to others is not lessened thereby. The views of the authors on certain subjects, as for example, the use of alcohol, etc., are those that have been held in the past and not in all respects what modern reformers would advocate, that is to say they do not go to extremes. On the whole, the work will be found to be a very safe guide and a very handy reference book for the physician.

A GUIDE TO THE CLINICAL EXAMINATION OF THE BLOOD for Diagnostic Purposes. By Richard C. Cabot, M.D., with Colored Plates and Engravings. Fourth Revised Edition. Cloth. Pp. 494. Price, $3.25. New York: Wm. Wood & Co. 1901.

This fourth edition of Cabot's work has been almost entirely rewritten. The section on serum diagnosis has been abridged and the table of contents abbreviated so that the book is not greatly increased in size. It has apparently been brought up to date, though some of the very latest researches in regard to blood diagnosis do not appear to be mentioned. Like the former editions, it is handsomely presented to the profession and will undoubtedly retain the favor with which it has heretofore been received.

Societies.

COMING MEETINGS.

Utah State Medical Society, Provo City, Oct. 1-2, 1901.
Idaho State Medical Society, Pocatello, Oct. 3-4, 1901.
Tri-State Medical Society of Alabama, Georgia and Tennessee, Nashville, Tenn., Oct. 8-10, 1901.
Wyoming State Medical Society, Evanston, Oct. 8-9, 1901.
Vermont State Medical Society, Montpelier, Oct. 10-11, 1901.
New York State Medical Association, New York City, Oct. 21-24, 1901.
Medical Society of Virginia, Lynchburg, Nov. 5-7, 1901.
Oklahoma Territory Medical Association, Oklahoma City, Nov. 13, 1901.
Southern Surgical and Gynecological Association, Richmond, Va., Nov. 19, 1901.

Huntington County (Ind.) Medical Society.—This Society held its annual meeting at Huntington, September 17. Dr. Charles L. Wright was elected president, and Dr. Erwin Wright, secretary and treasurer, both of Huntington.

Louisville Society of Medicine.—At the annual meeting of this Society, held September 12, Dr. Walker B. Gosset was elected president; Dr. Thomas A. Hays, vice-president; Dr. Waller O. Green, secretary, and Dr. A. Henry Falconer, treasurer.

Knox County (Tenn.) Medical Society.—At the annual meeting of this Society, held at Knoxville, September 5, the following officers were elected: Dr. C. P. McNabb, president; Dr. J. M. Kennedy, vice-president; Dr. A. D. Scruggs, secretary; and Dr. E. R. Zemp, treasurer.

Syracuse (N. Y.) Hospital Association.—At a meeting of this Association, held at Syracuse, September 5, a permanent organization was effected and the following officers elected: President, Dr. Nathan Jacobson; vice-president, Dr. Frederick R. Hazard, and secretary-treasurer, Dr. George M. Price, all of Syracuse.

Douglas County (Minn.) Medical Society.—The annual meeting of this Society was held, August 4, and the following officers elected: Dr. Herbert J. Orchard, West Superior, president; Dr. A. W. James, Solon Springs, vice-president; Dr. Louis Moody, secretary, and Dr. P. G. McGill, treasurer, both of West Superior.

Montour County (Pa.) Medical Society.—At the annual meeting of this Society, held at Danville, September 4, the following officers were elected: President, Dr. T. B. Winterstein; vice-presidents, Drs. G. A. Stock and E. A. Smith; corresponding secretary, Dr. Ida Ashenhurst; recording secretary, Dr. J. R. Kimerer, and treasurer, Dr. P. C. Newbaker.

International Congress of Nurses.—The week ending September 21 marked a very successful meeting of this Congress at the Pan-American Exposition. Saturday was set apart by the management as Nurses' Day, and the close was the occasion of a reception given at Castle Inn by the local nurses' societies. The attendance was good throughout the meeting and much interest was shown in the papers.

National Association of Hospital Superintendents.—At the meeting of this Association, held in New York City, September 12, the following were elected for the ensuing year: Dr. J. T. Duryea, Kings County Hospital, president; Dr. Charles O'Reilly, Toronto General Hospital, vice-president; A. D. Shaw, Harper Hospital, Detroit (re-elected), treasurer, and Dr. D. T. Test, Pennsylvania Hospital, Philadelphia, secretary.

American Academy of Railway Surgeons.—At the annual business meeting of the Academy, held in Chicago, September 13, the following officers were elected: Dr. August F. Jonas, Omaha, president; Drs. Luther Sexton, New Orleans, and William H. German, Morgan Park, Ill., vice-presidents; Dr. Thomas B. Lacey, Council Bluffs, secretary and treasurer, and Dr. R. Harvey Reed, Rock Springs, Wyo., editor. The Academy meets in 1902, at Kansas City, Mo.

Rockland County (N. Y.) Medical Association.—On September 6, at Hotel St. George, Nyack, N. Y., the members of the Fifth District Branch met and organized this Association, by the adoption of by-laws and the election of the following officers: President, Dr. George Blauvet, Nyack; vice-president, Dr. D. V. Van Wagenen, Suffren; secretary-treasurer, Dr. N. B. Bailey, Haverstraw; fellow, Dr. S. W. Toms, Nyack, and alternate, Dr. Charles D. Kline, New York. Addresses were made by Dr. John A. Wyeth, president of the New York State and the American Medical Associations; Dr. Edmond L. Cocks, secretary of the Fifth District Branch of the New York State Medical Association; Dr. C. E. Dennison, treasurer New York County Medical Association; Dr. J. W. S Gouley, New York City; Dr. Milton C. Conner, Middletown, and Dr. C. S. Payne, Liberty, president of the Sullivan County Medical Association. The enthusiasm of the members of the regular profession in the work of the New York State Medical Association in the county, is shown by the fact that of the twenty-four practicing physicians in the locality, eleven have already become members of the Association and eight of the others have signified their intentions of doing so at an early date.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Twenty-seventh Annual Meeting, held at Put-in-Bay Island, Ohio, September 12, 13 and 14, 1901.

President Dr. A. H. Cordier, Kansas City, Mo., in the Chair.

President's Address.

DR. A. H. CORDIER selected for his subject "Some Phases of Nephrolithiasis." He drew the following deductions: 1. Hemorrhage from parenchymatous organs is, in most instances, easily controlled. 2. Nephrolithiasis is more prevalent than is generally supposed. 3. A stone having formed in the pelvis of the kidney, if too large to pass through the ureter, will sooner or later produce symptoms demanding its removal. 4. Suppuration in stone cases is, as a rule, a late process and should be prevented by early surgery. 5. A wound in a healthy kidney heals rapidly. 6. Obscure, persistent pains in the region of the kidneys, in a patient who has had a renal colic years ago, should lead to an exploration of the kidney. 7. The operation of nephrolithotomy has a very low mortality. 8. The kidney should not be removed unless practically destroyed by the disease. 9. There exists a special cause for the development of stones in the right kidney. 10. With a carefully obtained clinical history, the diagnosis of stone in the kidney is usually easy. 11. At the time of operating the ureter should be explored, that its patency can be assured. 12. Post-operative patience and faithful effort on the part of the surgeon will result in the saving of many organs; otherwise removal will be necessary.

Fractures.

DR. E. B. SMITH, Detroit, read a paper on this subject. He gave a résumé of the old and new methods in diagnosing fractures. He said that fractures in each stage presented certain definite pathological surgical conditions. The diagnosis, treatment, prognosis, complications with their medico-legal status were dwelt upon at length, and lesions examined, treated, and met by surgical experience.

DR. A. M. HAYDEN, Evansville, said a joint that has a fracture into it should be kept quiet or immobilized for at least

four or five weeks, so that the fragments may become thoroughly united and healed before resorting to passive motion. Passive motion was used too early.

DR. W. T. STEWART, Chicago, spoke of suturing the fragments in fractures, saying he had been disappointed in using the various methods recommended in text-books and journal literature, and expressed the hope that some member would speak of immobilization of parts in delayed union of fractures, and in fractures of recent occurrence.

DR. S. S. THORN, Toledo, said one cause of delayed union in fractures was malnutrition, the result of enforced anemia, and this anemia was the result of applying bandages too tightly and the use of short splints, thereby causing constriction, which resulted in anemia, starvation, and hence delayed union.

DR. A. J. OCHSNER, Chicago, mentioned the interposition of muscle or fascia between the fragments as another cause of non-union of bone, and cited cases in point.

DR. A. M. PHELPS, New York, spoke of a third reason why union did not take place after a fracture of the thigh—the nutrient artery became ruptured, and thus nutrition was cut off. Treating fracture with coaptation splints was wrong. He favored extension (Buck) and fixation in fractures of the femur. A patient with a fractured femur is put to bed with Buck's extension applied for a week or ten days, until laceration of the soft parts has subsided, after which a brace is applied, the patient gets out of bed, is driven about in a carriage, and fed well.

Floating Liver, with Report of a Case.

DR. J. HENRY CARSTENS, Detroit, said that very few such cases had been reported. The condition was often associated with general ptosis of the abdominal viscera. The patient was a woman, aged 40, quite stout. A gradually developing tumor had been noticed, starting on the right side and growing downwards. It was firm and non-fluctuating. On account of the distressing nervous symptoms, an exploratory celiotomy was done, and the right lobe of the liver found enlarged and hanging down to the pelvis. It could be replaced in the normal position, and was stitched there. Recovery took place, with disappearance of all the distressing symptoms.

DR. WILLIS G. MACDONALD, Albany, had seen a considerable group of such cases. Some years ago he showed the lobe of a floating liver with a gall-bladder and some gallstones. He had seen two cases in which there was general ptosis of the liver, one in which, by change of position of the patient, it was quite possible to have had the liver float down beyond the border-line of the umbilicus, and, changing the position of the patient back again, have it disappear beyond the border of the ribs.

Report on Sterilization of Rubber Gloves by Formaldehyde, and on the Use of Mild Antiseptics Inside the Gloves.

DR. A. GOLDSPOHN, Chicago, has carried on a series of bacteriologic tests to determine the minimum requirements for sterilizing rubber gloves by formalin gas. He used small pieces of surgeon's silk as germ-carriers, because the gas would evaporate from them. With his experiments he determined that, 1, a small connection with a chimney flue to afford a circulation of the gas in the sterilizer appears to be necessary when the gas is generated by a lamp; 2, that three hours was the minimum time needed for certain sterilization in his apparatus of that construction. A cross test was made by pouring culture material into the gloves afterwards, and heating it. Sterilized boric acid powder is used as dusting powder inside the gloves to make them slip on dry and very easily. About one-half ounce of 55 per cent. alcohol is then poured into each glove. The fluid in the gloves after operating one or more hours was tested by culture in many experiments and found sterile with one exception.

Infection from the Bacillus Aerogenes Capsulatus.

DR. JULIUS H. JACOBSON, Toledo, after detailing some experiments and narrating observations, deduced the following conclusions: 1. That infection from the bacillus aerogenes capsulatus occurs much more frequently than is recognized. 2. It dominates the whole field of pneumo-pathology (Welch). 3. Such terms as emphysematous gangrene, air embolism, emphysematous cellulitis, are misleading and vague, and should become obselete. 4. Infection from this germ produces a rapid toxemia; the formation of gas in infected areas resulting in gangrene and death. 5. Its principal habitat is the soil and intestinal tract. 6. Owing to its wide distribution in the soil, the danger of infection in all traumatic cases should not be forgotten. 7. A probable diagnosis can often be made by the history, clinical course, and objective signs of the case. 8. A positive diagnosis can only be made by bacteriologic examinations, cultural and animal inoculations. Simple stained specimens taken from the site of infection will often make the diagnosis.

Features Determining Permanency of Cure in Radical Operations for Hernia.

DR. A. J. OCHSNER, Chicago, said that the permanent success following herniotomy depended upon a comparatively small number of practical points which must be observed in order to secure satisfactory results regularly: 1. The wound must heal primarily because suppuration resulted in an abundance of cicatricial tissue and this was most unstable. 2. The stitches must not be drawn tightly, in order to avoid pressure necrosis. 3. The edges of the wound to be united must be free from fat and other unstable tissues. 4. The wound should be supported by broad rubber adhesive plaster strips until healed. 5. The patient should be kept in bed two or three weeks. 6. After the operation abnormal intra-abdominal pressure should be eliminated by avoiding constipation, etc.

1. In inguinal hernia the entire sac should be removed. It was especially important to remove all the loose tissue between the transversalis and internal oblique muscles on one side and Poupart's ligament on the other. The upper portion of this canal should be closed with especial care. In case of a long omentum this should be resected.

2. In femoral hernia the canal through which the sac protruded was a perfect ring and consequently if the entire sac was removed this ring would invariably close, and there could be no recurrence. All meddlesome operations contemplating the closure of this ring caused a certain percentage of recurrences.

3. In ventral hernia, following laparatomy, the original layers should be laid bare, and then the corresponding layers should be carefully united. The author preferred deep silkworm gut sutures to be tied after each layer had been united separately with chromicized catgut sutures.

4. In umbilical hernia the ingenious operation first described by Dr. W. J. Mayo, consisting of an overlapping of the edges of the hernial ring from above downward or from side to side for a distance of one and one-half inches, had given complete satisfaction.

Severing of the Vas Deferens and Its Relation to the Neuro-psychopathic Constitution.

DR. H. C. SHARP, Jeffersonville, Ind., discussed the subject under three heads: 1. The law of heredity, influencing the formation of the character of intellect and will, and the controlling of the appetites and passions, and all the moral impulses, and the pathological conditions to which the mental and physical life are subject. The chief manifestations of this diathesis are chorea, hysteria, hypochondriasis, inebriety, imbecility, criminality, and insanity; and it includes in its subjects sometimes the most gifted, as Burns, Coleridge, Dr. Quincey, and others. 2. The rapid proportional increase of this diathesis, in the face of the efforts of noted sociologists and penologists. 3. The severing of the vas deferens as the means of stamping out this diathesis. The author outlined the field of the operation, the preparation for and method of operating.

DR. A. J. OCHSNER had removed the vas deferens in a number of tubercular cases since his first operative work on defectives and criminals, and in no case has there been any disturbance of the ability of the patient to enjoy sexual intercourse.

Morbid Conditions of the Upper Respiratory Tract Resulting from Infectious Diseases.

DR. CAROLUS M. COBB, Boston, gave a résumé of the autopsies reported by Wolfl, Pearce and Zuckerkandl. These autopsies showed that the involvement of the nasal accessory sinuses during the course of the fatal cases of diphtheria, scarlet fever, measles, and influenza, was the rule rather than the exception. He then showed from an analysis of 102 cases of nasal or post-nasal catarrh without nasal obstruction, that 69 per cent. of these cases could be traced directly to one or more attacks of the infectious diseases. He called attention to the danger of treatment to the ears during the height of the primary disease, by means of douches, and drew the following conclusions:

Acute Intestinal Auto-Infection.

DR. JOHN M. BATTEN, Dowingstown, Pa., was called to see professionally W. F. B., 56 years, on Feb. 21, 1898. He had been suffering with exhaustion for several days, although neither his pulse nor his temperature was disturbed. He ordered him to bed, thinking that rest in bed might be beneficial to him. Within forty-eight hours, on his own account, patient took a dose of calomel, which still further prostrated him, so he had to be assisted to bed from the chamber. He noticed that patient had had a gray, leaden complexion for several weeks preceding his first call. That gray or cachetic complexion which was present is usually pathognomonic of intestinal auto-infection, although it may indicate malignant disease of the liver. In fact, it was his opinion it was malignant disease of the liver for several days after his first visit, before he could make a differential diagnosis of intestinal auto-infection from malignant disease of the liver, as there was a congestion or a thickening of the lower end of the stomach and upper end of the duodenum. The patient was corpulent, weighing 220 pounds, and lost 40 pounds during the two months he was confined to bed. Previous to his ailment, patient had been careless in securing a regularity in the movement of his bowels for some months. The usual symptoms presented themselves, constipation, flatulency, borborygmus, urates and the constituents of the bile in the urine, fever, headache, unpleasant dreams, and melancholia.

The treatment consisted of large daily doses of calomel till the bile flowed freely, then antiseptics internally, together with small doses of mercury, till an amelioration of the disease was effected, then the natural mineral waters, followed by vegetable tonics in connection with hot baths. For weak heart, with which he suffered, strychnia was prescribed. Nitrate of silver and small doses of mercury for the congestion of the lower end of the stomach, and upper end of the duodenum, which was thought to exist. The diet was beef essence, but he did not exhibit a disposition to eat. His legs swelled in convalescence, and he suffered acute pain alternately in the knees. Patient in due time fully recovered his health, after a protracted stay at Mount Clemens, Mich., whence he had gone as soon as he had convalesced sufficiently to enable him to do so.

Asthma.

DR. JOHN NORTH, Toledo, Ohio, said that a great many theories have been advanced as to the etiology and pathology of asthma; among them may be mentioned reflex neurosis, contraction of bronchial tubes, nervous spasm, blood disease, irritation of air-tubes, irritating humors, extension of bronchitis, vasomotor bronchitis, diathetic neurosis, neuroses of the pulmonary plexus, uric acid diathesis, oxalic acid dyscrasia, excessive venous blood in the medulla, as a symptom of emphysema and bronchitis, etc. Most of these theories contain a small grain of truth, but no one of them can account for the asthmatic paroxysm. Three factors are required for the production of asthma. These are called the "asthmatic tripod," as follows: 1. A vulnerable area of mucous membrane. 2. An abnormally sensitive nerve center. 3. An external irritant or exciting cause. If all these three factors are present at any one time, we will have an attack of asthma. No two of them can produce an attack; all three are required. Remove one of them, and the attack of asthma will not return. The first factor for the production of asthma may be situated in the nose, naso-pharynx, pharynx, larynx, or bronchial tubes. The various names given to the different varieties of asthma are derived from the locality of the vulnerable area of mucous membrane. The second factor may be either inherited or acquired. The neurotic element in asthma has been observed by all writers. Uric acid, oxalic acid, and the oxalates may produce abnormal nerve centers. The third factor is difficult to determine in some cases, as we may have a number of irritants and exciting causes.

In the treatment of asthma, attention must be given to the three factors necessary to produce asthma. The treatment is divided into that of relieving the paroxysm of dyspnea, and treatment during the interval to prevent their recurrence. The relief of the paroxysm may be accomplished by remedies that relieve either of the three factors mentioned.

(To be continued.)

OMAHA MEDICAL SOCIETY.

Regular Meeting, held Sept. 11, 1901.

First Aid to the Injured.

DR. AUGUST F. JONAS delivered an address on this subject. Dr. Jonas is the surgeon of the Union Pacific Railway and has been most fortunate in being permitted to carry out his ideas with reference to his department unhampered. He said that the proposition to establish classes for instruction in first aid work and to introduce the work over the whole system, was a business one, of advantage both to the company and the men. He was given carte blanche, and has been at liberty to do as he thought best.

It was Dr. Jonas' idea that the men must be instructed systematically, simply, and practically, and that interest in matters in first aid must be kept alive. To this end, classes were formed and models, charts and living subjects were used to teach the rudiments of anatomy. Very simple, plain English terms only were used. The pupils proved to be surprisingly apt. In a later lesson, shock, wounds, hemorrhage, burns and exposure to cold were considered. Still later, fractures, sprains, dislocations, suffocation and drowning were taken up. The next lesson covered fainting, apoplexy, intoxication, heat-stroke, epilepsy, concussion and poisons. Lastly, bandaging and transportation of the injured were taken up. The men were impressed with the idea that this instruction did not make them doctors and that the function of the first-aid man was to render intelligent assistance prior to the coming of the physician and that the uninstructed, though well meaning, who tried to assist the injured, often did things which were both useless and positively harmful. They were taught as strongly what not to do as they were what to do. Esmarch's triangular bandage was shown and used with surprisingly good results. The classes were shown how to use very simple splint material to prevent simple fractures from becoming compound. The use of simple, domestic remedies was taught. Each pupil was required to dress imaginary wounds and burns, to apply splints, bandages and the tourniquet, and to perform artificial respiration. Transportation of the injured, with and without stretchers, was practically taught. The interest manifested by the pupils was most flattering. They very quickly recognized any mistakes made in applying dressings. The pupils were all furnished with a copy of the "Manual of First Aid to the Injured," by Bowditch Morton, M.D. To maintain the interest, a "first-aid fraternity," composed of members who have passed an examination for the emergency corps, will be organized. The fraternity will have a ritual and will be officered by the men themselves. Dr. Jonas said that he was most gratified to know that the mass of the men had already learned not to put their fingers into a wound.

After a great deal of experimentation, he had placed in the various shops and upon all railway trains a tin box of first-aid supplies. These boxes are about 10 by 12 and 4 inches deep. They have four partitions of binder's board which can be used for small splints. The box contains antiseptic tablets, antiseptic pads, cotton, picric acid gauze, adhesive plaster, court

plaster, vaselin, dusting powder, pins, safety pins, assorted roller bandages, a roll of cotton cloth, one of absorbent lint, rubber bandage and a pair of scissors. Simple directions for the use of the material in the box and directions as to how to treat such emergencies as fainting are enclosed within.

ROCKY MOUNTAIN INTERSTATE MEDICAL ASSOCIATION.

Third Annual Meeting, held at Denver, Sept. 3 and 4, 1901.

Retinal Lesions of Chronic Interstitial Nephritis.

DR. EDWARD JACKSON, Denver, divided the lesions into the following, 1, alterations in contour, size, color of the retinal vessels; 2, hemorrhage; 3, retinal edema; 4, degenerative changes in the neural elements of the retina and alterations in the layer of pigment epithelium; 5, deposits of exudate. These retinal changes are closely associated with vascular changes, and are more constant than with albumin in urine, casts of any form or any other clinical evidence of renal disease. They appear when the balance of blood pressure and matter to be eliminated has been lost, and give most positive notice of a state of nutrition that can not very long continue.

Changes Necessary to Secure Interstate Medical Licenses.

Dr. John A. Donovan, Butte, Montana, after reviewing the laws of the ten Western States, arrives at the conclusion that each state should amend its laws so as to accept certificates of certain other states. He does not agree with those who insist on the state making the educational requirements necessary to enter college.

Carcinoma of the Breast.

DR. D. A. RICHARDSON, Denver, analyzing the cases of carcinoma of breasts which he encountered during his twelve years of practice, noticed the following: That etiologically it is always of traumatic origin. He removed a sarcoma from a child 8 years old. If a carcinoma be let alone it becomes localized, and in many cases sacculated.

Conservative Surgery of the Ovary and Tube.

DR. W. W. GRANT, Denver, related a case and concluded that the ordinary benign cysts of the ovary should be treated by resection, and not by complete extirpation of the organ. The small healthy remnant of an ovary with an intact tube will carry on the functions of ovulation and menstruation normally.

Report of a Case of Acute Gangrenous Pancreatitis.

DR. LEONARD FREEMAN, Denver, said that the patient, Italian, 30 years, in good health until very recently, was seized suddenly with severe griping pain in abdomen, vomiting and diarrhea supervened. There were no chills, no headache; the abdomen was greatly distended, mind clear. Liver dulness was diminished, splenic dulness enlarged. There was some jaundice; pulse 100, temperature 101. In the left iliac region a dull resisting, somewhat prominent mass could be felt. An incision in the left iliac region revealed the presence of nearly a pint of bloody, foul-smelling, non-purulent fluid. The condition of the patient precluded further exploration. The autopsy showed a friable, disintegrated, greatly enlarged and gangrenous pancreas.

Report of Seventy Cases of Lobar Pneumonia.

DR. J. N. HALL, Denver, gave the conclusion derived from a study of cases seen between September 1, 1900, and April, 1901. Deaths were 24, or 34.8 per cent. Eight cases died within twenty-four hours after admission to hospital. Of the 3 in the 1st decade of life all recovered; of the 16 in the 2d decade, 5 died; of the 13 in the 4th decade 6 died. Total number of lobes involved were 116. Other diseases associated were tuberculosis, 7; typhoid, 3; erysipelas, 1; general sepsis, 1; acute rheumatism, 1; cerebral thrombosi, 1; traumatic pneumothorax, 1; Bright's disease, 2; advanced empyema, 1; organic mitral regurgitation, 2. Highest temperature was 106. Venesection should be oftener employed. Sinapisms and turpentine stupes were used, as also ice. No medicinal antipyretics were used. Alcohol was freely used. He believes in the usefulness of strychnin.

Chemical Treatment of Traumatism.

DR. R. HARVEY REED, Rock Springs, Wyo., said that peroxid of hydrogen was valuable in this condition: 1, as a hemostatic in oozing wounds; 2, to wash out pus and pathogenic microbes; 3, to diagnosticate and locate the extent of sinuses. He gives preference to moist dressings for the following reasons: Cell proliferation does not take place when the parts are dry. Dusting bodies collect in chunks and become foreign bodies.

Mountain Fever.

DR. W. W. WOODRING, Mt. Pleasant, Utah, takes the stand that there is such a thing as mountain fever. It is mostly confined to the young. He has never seen a case in a man over 50 years of age. It is ushered in with chill and followed by a temperature of from one to four degrees in the first twenty-four hours.

Report of Two Unusual Cases of Multiple Neuritis in Children.

DR. E. DELEHANTY, Denver, reported a case in a boy who developed chorea after an attack of typhoid fever. Sometime after he recovered from the chorea he complained of pains in feet and hands, tingling sensation with feelings of pins and needles, wrist drop, foot drop, anesthesia of fingers and toes, wasting of extensors. Breathing later became difficult and diaphragmatic. Patient died. The other case was a boy of 9 years. After an attack of diphtheria he commenced to complain of numbness and tingling, double vision, wasting, foot drop, paralysis of soft palate. Death occurred.

The Function of the Appendix.

DR. E. P. HERSHEY, Denver, said that the appendix has a secretory function. Whether or not this function is of any importance remains to be ferreted out by further investigation. Impaction occurs in transverse colon, sigmoid and rectum. But as soon as the appendix becomes affected impaction occurs at the cecum. This cul-de-sac is the most inviting place for the accumulation of feces. The mass remains here and would become hardened were it not for the secretions that keep the mass thin and moist. It is fair to presume that inasmuch as the appendix in the vast majority of cases is found pointing upwards, backwards and slightly to the left that this is its normal position. These statements have become facts through observation of a number of cases that have had the appendix removed. Whenever constipation occurs in these cases a sense of heaviness and oppression occurs in the right iliac fossa, invariably relieved by free purgation.

DR. WRIGHT said that he hoped the doctor had weighed the matter thoroughly before presenting a paper of this kind to the Society.

DR. EDSON thought the author had produced in his argument no facts with which to prove his position. It is logical, and a very pretty piece of argument, but he has given us nothing upon which to base it. We have his conclusions but he has produced no facts with which to substantiate his position, and his argument does not take into account the known pathology of appendicitis, and he has advanced a new idea as to the position of the appendix.

DR. BEGGS: The Doctor states that the appendix has a legitimate function in the human being upon its anatomic structure—upon the claim that the appendix has a much larger glandular supply than any other portion of the intestines. Now, with reference to that, we are met in the beginning with a little confusion of ideas. Histologically, the mucous membrane of the appendix is almost the same as that of the large intestine. The structure of the tubular glands in the appendix is the same as that in the large intestine. They are so infinitesimally smaller in man when compared with the rest of the intestine that from a quantitive point of view they can be neglected. When we pass a little lower in the scale of animals we find that the appendix plays a much greater function in the lower animals than in man. The so-called valve of the appendix does not act as an obstruction to foreign bodies in their

passage into the appendix, and we must not offer our ideas that a majority of our cases are due to foreign bodies.

DR. PERKINS' experience had been that quite a large percentage of appendicitis cases begin with diarrhea, and not with a constipation. Another point is that in opening the abdomen for other operations we find the appendix in a normal condition, and it appears to have practically nothing in it, and it is very small as a rule, sometimes appears to be almost obliterated in portions, and it seems if the secretory object of this kind was so great as the writer would lead us to believe that we would find it distended with fluid, and find much more evidence of this sort of thing..

DR. ESKRIDGE moved that Dr. Hershey be requested to give this Association at its next meeting the data on which he bases his conclusions after having pursued his investigations farther. The motion was carried.

Report of a Case of Rapid Respiration in Fatal Organic Diseases of the Brain.

DR. J. T. ESKRIDGE, Denver, reported at length a case of exceedingly rapid and very slow respiration, with pauses in respiration varying from twenty seconds to two minutes in duration, in a patient suffering from tubercular meningitis, syphilitic periarteritis of the pons and medulla, and from hysteria. The most rapid respiration was 140 to 142 per minute; the slowest 2 to 3 per minute, the latter extending over prolonged periods.

An Operation for Spina Bifida.

DR. LEONARD FREEMAN, Denver, reported a case of a baby 7 weeks old who had a spina bifida, a translucent tumor the size of a goose-egg. The sessile sac had steadily increased in size until the integument had become translucent and as thin as tissue paper. An elliptical incision was carried around the tumor near the base and the sac opened. The elongated conus was freed from its ventral attachments to the sac and replaced within the opening. The sac was cut away near its base, neck freed from its attachments to edge of cavity and stuffed into opening on to cord. The operation was whipped over with silver wire, and wound sealed with collodion. Satisfactory recovery took place.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Fourteenth Annual Meeting, held at Cleveland, Sept. 17, 18 and 19, 1901.

FIRST DAY—MORNING SESSION.

President DR. W. E. B. DAVIS, of Birmingham, Alabama, in the chair.

An Address of Welcome was delivered by DR. C. H. HOOVER, of Cleveland, to which a fitting response was made by President Davis.

Tubo-Abdominal Pregnancy.

DR. WILLIAM H. HUMISTON, Cleveland, reported this case. The principal points of interest were: 1. Extreme loss of blood and shock; pulse, 180, barely perceptible over radials; temperature, 95. 2. The prompt result of submammary injections of normal sterile saline solution at the time of beginning anesthesia. These injections were recommended in desperate cases. 3. No attempt was made to remove the large amount of blood filling the abdomen close to the pelvic brim. The large amount of blood gave no trouble, and was taken care of and absorbed by the peritoneum rapidly.

Cornual Pregnancy; Rupture in the Fourth Month; Operation; Recovery.

DR. MILES F. PORTER, Fort Wayne, Ind., saw Mrs. H. sixteen hours after she had been taken sick with severe abdominal pain accompanied by the usual signs of severe hemorrhage. She had had one living child and one miscarriage, and was near the middle of her third pregnancy. Hasty examination revealed nothing abnormal in the vagina save a slight bloody discharge. Celiotomy was immediately done and a ruptured cornual pregnancy of about four and a half months with bicornute uterus found. The belly was filled with blood. The ruptured cornu was amputated and the stump sutured, leaving the ovary and the tube attached to the stump. There was profound depression, which was treated by saline rectal injections, and hypodermic administration of digitalin and strychnin. Recovery was uneventful. A large quantity of warm sterile water was left in the abdomen. The intact cornu was much enlarged and attached to the ruptured cornu with a rather long pedicle. The gestation sac was thick save at the point of rupture and composed of uterine tissue. There was no communication between either the sac and the vagina or the tube and the sac. These communications became occluded subsequent to the impregnation. A decidual membrane was present. The presence of this membrane marks the case as one of ruptured pregnancy in an illy-developed cornu of a bicornute uterus. In tubal and interstitial pregnancy there is no decidual membrane in the sac. An abnormally low implantation of the tube and round ligament accounts for the fact that in this case they were attached to the outer side of the stump left after removal of the sac, and not to the sac itself, as is the rule. As a rule, pregnancy in a bicornute uterus terminates normally. In three of the cases referred to in the author's paper, including the author's, normal pregnancies preceded the rupture four times. In the others, no reference as to the other pregnancies was made. He had been able to find reports of but 18 cases of ruptured cornual pregnancy which, with his own, makes 19 cases reported to date. The symptoms are those of ectopic pregnancy save that the rupture occurs later in cornual pregnancy, and the hemorrhage is usually more profuse. A previous history of sterility or of tubal infection points to tubal rather than cornual pregnancy. These two papers were discussed jointly.

DR. EDWARD J. ILL, Newark, N. J., endorsed the treatment employed by Dr. Humiston in his case, and said the quicker an operation is done in such cases, and the sooner the abdominal cavity is walled off, the better the chances for recovery of the patient. He agreed with Dr. Humiston as to the quantity of normal salt solution that these patients will receive and absorb. Massage assisted materially in the absorption of the fluid.

DR. EDWIN WALKER, Evansville, Ind., referred to the indications for the use of normal salt solution in the abdominal cavity. He could not see what benefit was derived from the use of normal salt solution in the case of Dr. Humiston, for the reason there were well-organized clots, and these could not have been affected by it. Such clots, when organized, became drier and were absorbed, and the salt solution only aided in the absorption of any septic material that might be present. He believed it was a mistake in all cases to wash out the abdominal cavity with salt solution. By wiping out the cavity with dry gauze it could be made clean, if it was not infected.

DR. M. ROSENWASSER, Cleveland, commended the use of subcutaneous saline solution in the case of Dr. Humiston, but expressed doubt as to the value of salt solution in the abdominal cavity. He had not seen any special beneficial change either in the pulse or condition of the patient by leaving saline solution in the abdominal cavity. In packing the extraperitoneal cavity that was left, he used sterile gauze instead of iodoform gauze.

DR. HERMAN E. HAYD, Buffalo, disagreed with Dr. Rosenwasser that the saline fluid was not absorbed. He had filled the peritoneal cavity with normal salt solution, leaving two stitches open, and in an hour and a half the fluid was absorbed, as subsequently verified by postmortem examination.

DR. ROSENWASSER did not wish to be understood as saying that the fluid was not absorbed, but that it was not readily absorbed when the peritoneum was in a pathological state.

DR. J. HENRY CARSTENS, Detroit, stated that the use of normal saline solution in the abdominal cavity prevented, to a large extent, agglutination of the intestines and omentum. This cavity could be cleaned out just as effectively by sponges as by washing it out with salt solution. The drier the cavity was kept, the better the chances for agglutination. He preferred the use of sterile rather than iodoform gauze.

DR. JAMES F. BALDWIN, Columbus, Ohio, said he had been disappointed in the use of normal salt solution, whether in-

jected into the subcutaneous tissue or poured into the abdominal cavity and left there to be absorbed. He had used salt solution again and again, and it seemed to him absolutely inert. He had never seen it produce a particle of benefit.

DR. CHARLES GREENE CUMSTON, Boston, stated that given a condition a patient was in when an operation was undertaken for ruptured tubal pregnancy, he did not think the peritoneal cavity nor the subcutaneous cellular tissue had a sufficient degree of vitality to be able to absorb the salt solution in the majority of cases. Furthermore, in cases where the surgeon injected salt solution into a cavity whose walls were the result of a pathologic change, he did not believe that the walls of that cavity would absorb the liquid. The only value that he could see in the normal salt solution was after a prolonged intra-abdominal operation, where the intestines had been exposed, where the loss of heat had been great and the surgeon desired to introduce a certain amount of heat into the abdominal cavity. On the other hand, the use of gauze sponges in wiping out the debris should be extremely limited because gauze would remove the epithelial covering of the peritoneum of the intestine and of the parietal peritoneum, and he believed was a fertile cause for adhesions after operation.

DR. EDWIN RICKETTS expressed great disappointment in the use of normal salt solution. He believed the results of its subcutaneous use had been overestimated. Wiping out the abdominal cavity vigorously with a sponge was disastrous to the patient. Gauze should be pressed in and out without any marked friction of the peritoneum. No remedy had as yet been found equal to the judicious use of strychnin to overcome shock.

DR. HUMISTON, in reply, said the abdominal cavity in his case was almost completely filled up to the under border of the liver with blood, and if he had attempted to handle the intestines and delay operation for the length of time it would take to cleanse the abdominal cavity of blood, he believed he would have lost his patient. He did not believe in irritating the peritoneal surface with dry gauze, as it injured it, and would often prove disastrous to the patient. He used iodoform gauze wrung out of hot sterile saline solution, thus washing the excess of iodoform out of it.

Transverse Incisions in Abdominal Celiotomy.

DR. CHARLES GREENE CUMSTON, Boston, for the last eighteen months had been opening the abdomen in many of his gynecological cases by a transverse incision, with a view to securing a more solid cicatrix than he believed could be obtained by a through-and-through incision. The first incision, which he had now made 45 times, is made at the upper limit of the pubic hair transversely, following a line parallel to the upper limits of the pubic hair, making it about a centimeter below the base of the hairy triangle. The skin and cellular tissue are cut through until the fascia is reached; the upper border of the wound is then rapidly dissected off the fascia by a few snips of the scissors and is then held up by a retractor. The lower border of the wound is also dissected off and drawn down by a retractor so that the incision becomes elongated, and if proper traction is made on the retractors by the assistant, a rectangular wound can be made sufficiently large to incise the fascia vertically to the extent of 5 or 6 centimeters. When incising the fascia he thought it better to do so over the inner border of one or the other rectus, and when the belly of the muscle has been freely exposed, its inner border is found and the whole muscular mass pushed aside, thus exposing the thin fascia underneath without wounding the fibers of the muscle in the slightest. After the peritoneum has been opened, the retractors holding the skin flaps back can be removed and ordinary abdominal retractors can then be employed. Through this transverse incision he had performed total hysterectomy with ease, and had done most of the ordinary work on the tubes and ovaries through an incision in the fascia not exceeding 6 centimeters in length. He had enucleated an intraligamentous fibroid the size of a fist through this incision without experiencing any difficulty whatsoever. He also described another incision which he had employed during the past two months nine times with great satisfaction.

DR. EDWIN RICKETTS could not agree with the essayist that the incision recommended by him was more advantageous than a median incision, or, in a case of single pus tube, even an opening on one side. In fact, some operators now did not select a median incision, but made an incision either to the right or left.

DR. J. HENRY CARSTENS saw a general surgeon make a transverse incision in performing a gastro-enterostomy for the removal of the gall-bladder, but he had great difficulty in bringing the muscles and fascia together on account of the tendency to retraction. He thought the incision described by the essayist might prove advantageous for the removal of small tumors where an extensive operation was not needed.

Sarcoma of the Breast.

DR. EDWIN RICKETTS, Cincinnati, reported two cases. The first patient was Mrs. McS., aged 64, married, mother of three children. Thirty years before, and at the age of 34 years, she first noticed a hard, round, small lump in her right breast. Eight years after this she called the attention of her family physician to it, exacting a promise from him that he would tell no one. This was twenty-two years before its removal. He advised non-interference. The essayist was called to see the patient in May, 1897; in January before, she had an attack of influenza, and was greatly prostrated from its effects, and from this time the tumor grew rapidly, being nearly the size of a child's head. On his visit he found her with a tumor of the right breast that was about as ugly and vicious looking a growth as he had ever beheld. The cancer was as large as a navel orange, from which a dark sanious fluid was discharging. It was so large that the right arm was forced to project well out from the body. Temperature and pulse were normal. After drying out the cavity it was packed full with 5 per cent. carbolic gauze. The surrounding skin was washed with soap and water, after which pure alcohol was freely applied. No enlarged axillary glands could be felt, especially after the growth was removed. The growth weighed 1½ pounds. Although a large woman, he experienced some difficulty in bringing together the edges of the flaps. Axilla was not disturbed. He had two points of suppuration, but barring this her recovery was entirely satisfactory. It was now four and a half years since the operation, and there was no evidence *in loco* or by metastasis. The growth proved to be spindle-celled sarcoma. The essayist then reported his second case.

In the discussion, DR. CUMSTON stated that every neoplasm of the breast should be removed as soon as it was palpable. The limit of three years for malignant disease of the breast as a sign that it would not recur was erroneous. He cited a case in point. He called attention to chronic interstitial mastitis, saying that this affection was more frequent in unmarried than in married women. Its pathology was not clear.

DR. CARSTENS urged the early removal of any kind of tumor of the mammary gland. He narrated cases in which apparently benign tumors had undergone pathological changes and had developed into sarcomata.

DR. HUMISTON held that a great many myomas of the uterus took on sarcomatous degeneration when it was least expected, and detailed an illustrative case.

DR. THOMAS B. EASTMAN, Indianapolis, discussed two points, saying that surgeons were disposed to search for enlarged axillary glands. Recent investigations had shown that a small gland might be full of carcinoma cells, while the larger glands might be free from them. Both small and large glands should be examined.

DR. JOSEPH PRICE, Philadelphia, stated that for many, many years he had removed the axillary gland in cases of cancer of the breast. He saw Knowsley Thornton, of London, England, do the complete operation for carcinoma of the breast long before it was done at the Johns Hopkins Hospital, and that Thornton stated at that time it was invariably his rule in removing tumors of the breast to clean out the axilla, no matter what the suspicion might be.

DR. JOHN C. SEXTON, Rushville, Indiana, was constrained to believe that sarcoma of the breast was not very rare. He had

seen two cases, in one of which there was a rapid recurrence, with metastasis of the ovary of the same side. This was a round-celled sarcoma, which was confirmed by an eminent pathologist. The other case was one of ordinary spindle-celled sarcoma in which recurrence took place promptly.

DR. MILES F. PORTER desired to place himself on record as saying that every tumor of the breast was suspicious, and required operation, and in his judgment any operation which stopped short of complete removal of the breast and cleaning out the axillary gland was not good surgery, and that time would prove it.

DR. HUMISTON said the statement made by the last speaker was too radical. Small benign tumors of the breast in young women could be readily removed by cocainization. Sections could be submitted to a microscopist, and if the tumor was found to be malignant a complete operation should be made.

DR. CUMSTON believed that chronic interstitial mastitis in the majority of cases was the starting-point of malignant neoplasms of the breast. He urged early radical and complete operation.

DR. E. GUSTAV ZINKE, Cincinnati, said it was very difficult to say before a tumor was in one's hand or under the microscope what was the actual nature of it. The physician, therefore, was placed in a very embarrassing position. He illustrated this point by narrating an interesting case.

DR. BALDWIN asked whether it was proper to speak of cases in which secondary growths occurred many years afterwards as recurrences. Also, whether it was proper to speak of growths occurring elsewhere in the body as metastases. He mentioned a case in which he removed a sarcoma of the ovary with a long pedicle, but there were no adhesions. A few years afterwards the woman developed a sarcoma of the kidney. He did not consider this a metastasis, nor a recurrence, but a brand-new sarcoma of the kidney. He narrated other cases.

DR. CARSTENS made an eloquent plea against the removal of the breast in cases of small benign tumors in young girls of 18 or 20. He vigorously contended that it was bad practice to do it, as it blighted their prospects for matrimony, and it was absolutely unnecessary.

DR. RICKETTS, in reply, endorsed the position taken by Dr. Carstens. In his case, if he had the operation to do over again, he should have removed only the tumor, and not a part of the breast with it.

FIRST DAY—AFTERNOON SESSION.

Galvanism as a Remedy for Uterine Hemorrhage.

DR. EDWIN WALKER, Evansville, Ind., stated that galvanism as a remedy in gynecology had been unduly lauded and condemned. Apostoli's method commanded the respect of surgeons, but the results had not been commensurate with claims, and had not been without danger. The minor uses of electricity partook of the character of tinkering, and were objectionable. There still remained a limited field in therapeutics for it, but it did not replace surgery. Its use in uterine hemorrhage was quite satisfactory. It should not be used where the cause of the hemorrhage could be removed by a clean surgical operation. In mild cases, in which the hemorrhage was practically the only symptom, and where no radical operation would be entertained, galvanism was the remedy. In another large class of cases where grave disease in other organs contraindicated operation, relief and often a systematic cure could be effected. Accurate diagnosis of all lesions in each patient was of the highest importance, so that life was not hazarded by an operation in the presence of a serious lesion elsewhere which was overlooked, or the patient, even if she recovered, was not benefited for the same reason.

The method of application was quite simple. The positive pole is attached to a platinum electrode and introduced into the uterus; the negative pole, attached to a copper plate covered with moist absorbent gauze, is placed over the abdomen. The current is gradually turned on until a distinct burning is felt under the negative pole, and continued ten to thirty minutes. Strict asepsis is necessary. The application is not painful. Two to eight applications are required.

DR. C. C. FREDERICK, Buffalo, stated that electricity had to a certain extent been replaced largely by surgical procedures. In the experimental stages the results that had been promised by the use of electricity by a great many who were enthusiasts were not borne out. Practitioners met with poor success with it, and in consequence became disgusted and abandoned it, and were now depending upon massage and surgical procedures to control uterine hemorrhages.

DR. HAYD had used electricity for many years, in fact, for five months he had worked with Apostoli; consequently, he spoke advisedly. When he considered the amount of good that had been done with it in treating pelvic troubles, and compared it with the amount of harm wrought, he felt that it would have been the best thing if practitioners of medicine knew nothing about intrauterine galvanization.

DR. PRICE expressed the belief that the application of electricity had a great deal to do in favoring the growth and development of fibroids rather than preventing or arresting them. He detailed two or three such cases.

DR. CARSTENS referred to the various causes of uterine hemorrhage. In all cases of excessive hemorrhage there was some cause for it. Sometimes the cause was constitutional and required simply constitutional treatment, but no operation. In other cases the hemorrhage was indicative of malignant disease of the uterus. If the use of electricity was advocated in these cases and the information was circulated among general practitioners that this agent was good for uterine hemorrhage, the result would be that a great many cases of beginning cancer of the uterus would be treated for weeks and months and the golden opportunity to remove the disease by early and timely surgical measures would have passed, and a diagnosis would finally be made too late. He argued against the indiscriminate use of electricity for uterine hemorrhages.

Retrodisplacements in Young Girls and Unmarried Women; Frequency and Best Methods of Treatment.

DR. HERMAN E. HAYD, Buffalo, N. Y., drew the following deductions: 1. A plea for the more careful examination of young women by competent and skilled men who can undertake any operative measures that are necessary. 2. Every case of retrodisplaced uterus in the young or unmarried or married woman may not require any treatment. 3. If they produce a definite symptomatology, the Alexander operation should be employed if the case be an operable one, that is, if the uterus is freely movable and the tubes and ovaries are healthy. 4. Retroversions and retroflexions in the young and unmarried should never be treated by pessaries, but by the Alexander operation. Tampons and pessaries have their place in retrodisplacements in married women or women who have been pregnant, but they accomplish practically nothing in the displacements of young women. 5. The Alexander operation is safe and without mortality incident to the operation, and no harm can come from its proper performance; even if the uterus subsequently falls, the patient is no worse off than she was previous to the operation. 6. It does not in any way interfere with pregnancy and future child-bearing, but, on the contrary, materially helps the possibility of pregnancy. 7. No pain or distress follows the operation if the case operated upon be properly selected, and if pain and suffering result, there existed at the time of the operation latent tubal and ovarian trouble, which sooner or later perhaps would have required a radical operation. If it becomes necessary to do a celiotomy on a person who previously had an Alexander operation, the uterus will be found in its normal anteflected position, which is necessary in every case, whether the tubes and ovaries are removed or not, to insure good health and freedom from future suffering.

Method for Suspension of Uterus.

DR. ROBERT T. MORRIS, New York, opens the abdomen in the middle line. An incision two inches long will suffice for most cases. The peritoneum over one round ligament is split and the round ligament is drawn out with a hook for a distance of 3 inches, more or less. Drawing out the round ligament with a hook makes naturally a long loop. The arms of the loop are sutured together with silk or chromic catgut. This

throws the sutured part of the round ligament out of commission, and leaves the ligament 3 inches shorter, more or less. The sutured loop is tucked back into the slit in the peritoneum of the broad ligament, and the opening is closed. The operation shortens the round ligaments, and allows the uterus to ride easily and elastically in a normal position. Its advantage over other ligament shortening operations lies in the securing of union of muscular structures. The surgeon does not have to depend upon peritoneal adhesion, which must be a failure in many cases.

Diseases and Injuries of the Cervix Uteri, and Their Treatment.

DR. J. W. HYDE, Brooklyn, N. Y., presented this paper: 1. In cases where the injury is recent, and the constitution of the patient is so good that no extensive degenerations have occurred—in short, where there is a reasonable probability of being able to restore the cervix to a normal condition, this should be done by Emmet's operation. 2. In old cases, where extensive alterations have taken place, as proved by direct examination, and not less certainly by the unmistakable and intractable reflexes that attend such alterations, the unbearable headaches usually referred to the vertex and the nuchal region, the gastric disturbances, and the endless procession of psychic, neurotic, motor, cardiac, and respiratory aberrations, so familiar to every experienced physician, in such cases trachelorrhaphy is out of the question. To remove all the diseased tissue, and that alone, would call for an unattainable amount of nicety of dissection; and supposing the dissection accomplished, the sewing up of what was left might result in a most interesting thing "of shreds and patches," but it would not be a cervix uteri, which is the only legitimate object of trachelorrhaphy. In such cases, amputation is as effective clinically as it is logical in theory. 3. The operation is not more dangerous than trachelorrhaphy. 4. It is not likely to be followed by stenosis of the canal. 5. There is nothing in the operation that seriously militates against conception, or a normal gestation and delivery.

FIRST DAY—EVENING SESSION.

Mechanical or Combined Plastic and Mechanical Treatment of Retrodeviations of the Womb.

DR. M. ROSENWASSER, Cleveland, Ohio, stated that retrodeviations of the womb were either simple or complicated. The complicated were subdivided into those with movable and fixed womb. Of 116 patients treated for retroversion, 63 of the second and third degrees were selected as proper subjects for mechanical treatment. They were treated by means of the pessary alone, or the plastic operation was supplemented by a pessary. From a table furnishing the details the following summary is obtained: Cured, 11; symptomatically cured, 15; improved, 26; not improved, 11.

In the body of the paper the writer considered each of the divisions, as above classified, and illustrated each by a brief history of typical cases. He maintained that cases of complicated retroversion with movable uterus could be converted into simple ones by plastic operations, and were then subject to treatment by mechanical support. After refuting the objections generally raised against the pessary, he submitted the following conclusions, based upon the present imperfect status of suspension operations: 1. A retroverted womb uncomplicated by disease should be replaced and supported by a pessary. 2. Retroversion complicated by diseased womb, or by impaired pelvic floor, the womb being movable, requires preliminary plastic operation to restore the normal condition before using a mechanical support. 3. Suspension operations should not be done simultaneously with the plastic in face of the probability that a pessary can sustain the uterus in position. 4. Retroversion complicated by aggravated prolapsus requires simultaneous plastic and suspension operations to effect a cure. 5. The treatment of retroversion with fixed womb is that for pelvic inflammation. Whenever the latter requires laparotomy, or colpotomy, the retroversion becomes subject to such surgical treatment as may appear best suited to the particular case. 6. Retroversion, simple or complicated, in which mechanical support and plastic operation have failed to cure or to relieve, and in which the symptoms demand relief, constitutes a proper indication for a suspension operation.

SECOND DAY—MORNING SESSION.

Some Observations on the Surgery of the Spleen.

DR. LEWIS S. MCMURTRY, Louisville, said that knowledge of the physiology and pathology of the spleen is so imperfect that the surgery of this organ has not advanced proportionately with that of the other organs of the abdominal cavity. In view of this fact, every case which may possibly contribute to our knowledge should be studied and recorded. He then reported a case of large cyst of the spleen. The patient was a vigorous woman of 30, well nourished, with a fluctuating abdominal tumor, appearing upon the left side of the abdomen, and readily movable from pelvis to diaphragm. The diagnosis was ovarian cyst with elongated pedicle, or floating cystic kidney. On abdominal section the tumor was found to be a cystic spleen. This was removed without difficulty and without hemorrhage, followed by prompt recovery. A careful microscopic examination showed the cyst to be simple and sterile. Three similar cases were reported. The essayist then considered the technique of splenectomy for cystic tumors of the spleen, commending the median incision and enucleation from below. He stated that it was not the purpose of the paper to consider all varieties of diseases of the spleen, nor to tabulate the statistics of splenectomy for hypertrophy and miscellaneous diseases, but rather to show that cystic degeneration of the spleen is sufficiently common to make a class of tumors deserving recognition as a factor in the diagnosis of cystic tumors of the abdomen. The results of operation in these cases show that the spleen is not essential to life and health.

Is Cesarean Section Justifiable in Placenta Previa?

DR. E. GUSTAV ZINKE, Cincinnati, went rather exhaustively into the history and literature of this subject and considered the cases reported. He referred to the justifiability of the operation, and the class of cases to which it is applicable. He likewise dwelt on the contraindications to the operation, and compared the management of placenta previa with and without Cesarean section. He believed that the Cesarean and the Porro operations were perfectly legitimate and elective procedures in all cases of placenta previa, central and complete, and especially so when the patient was a primipara, when the os was closed and the cervix unabridged; when hemorrhage was profuse and could not be controlled by tampons and separation of the placenta around the internal os. That there were cases of partial previa that might be successfully treated in the old way, he did not doubt. Perhaps a small majority of all the placenta previa cases could be treated successfully, so far as the mothers were concerned, after the manner of Fry and De Lee. But what of the large minority of mothers that succumb and the great majority of children that are sacrificed at once? The question presented was a very serious one, and should be earnestly considered, and when confronted with a case of central or complete placenta previa, or any other variety, where dilatation of the cervix was impossible or difficult, the patient and her immediate friends should be made acquainted with all the facts concerning both methods of treatment. If properly presented, he thought it was doubtful whether the majority of women would select forcible dilatation, version, extraction, etc.

Importance of the American Medical Association.

DR. W. E. B. DAVIS, Birmingham, Ala., delivered the "Presidential Address." After congratulating the Association upon the great work it had accomplished, urged the Fellows to use their influence in the better organization of the sections of the American Medical Association. He said: "The greatest and most influential organization in the United States should be the American Medical Association, the brightest lights in the profession should gather at its annual meetings and be prominent in the work of its sections and committees. Failure to be an active contributor to the work of this general national organization should be a deserved reflection on a prominent physician, whether he be a general practitioner or a specialist. It is not enough that our special societies should succeed, but

they should prove a source of strength to the entire profession, which can be best subserved by strengthening the American Medical Association, making it not only a power in scientific work, but giving it the prestige which will enable scientific medicine to receive due recognition from our national government."

Surgical Treatment of Biliary Calculi, with Special Reference to Hepatotomy.

The remainder of President Davis' address was confined to the principal operative procedures for cholelithiasis. He favored cholecystostomy, as a rule, for gall-bladder and cystic duct calculi. He said: "Much has been claimed within the past five years for cholecystendysis, with or without drainage of the abdominal cavity. While this operation has something to commend it, being simple and obviating the disagreeable discharge of bile, from three to four weeks, from a fistula, yet its field is limited when the etiology and pathology of cholelithiasis are given due consideration. Stagnation of bile with altered epithelium and infection from the typhoid or colon bacillus as found in many cases, where there is no evidence of infection from the character of the fluid in the bladder, would contraindicate its closure. If stones should be found, where an examination of the gall-bladder is conducted through the abdominal incision made for the relief of pelvic disease or other abdominal trouble, cholecystendysis might be performed with advantage." He advised strongly against the operation as performed by Kelly. The primary incision in the abdomen should be closed and the opening made as in the classical cystotomy. Cases in which calculi would be found by this method are not associated with inflammatory changes, and are the ones who go through life without symptoms referable to the gall-bladder being found at the autopsy or in the dissecting room.

Cholecystectomy.

This operation was reserved for stricture of the cystic duct, inflammatory changes which greatly endanger the walls of the bladder, and malignant disease. In discussing stone in the common duct, he said: "Choledochostomy without suture is called for in the large majority of common duct stones. Suture of the duct may be practiced if the patient's condition has not been rendered serious by much suffering and protracted jaundice, and if the duct is enlarged and not markedly inflamed. Gauze drainage should be resorted to in all cases, it matters not how carefully the stitching of the duct has been carried out. The time required for suturing the duct adds very greatly to the gravity of the operation in cholemia of long duration. It would also be contrary to surgical practice elsewhere to suture when offensive infected bile escapes from the duct. Morison's pouch, which will hold nearly a pint of fluid, makes drainage in this location entirely satisfactory. The lumbar stab is preferred by some surgeons, but the entire safety of transperitoneal drainage has been abundantly demonstrated. Kehr, who has done more gall-stone operations than any other surgeon, claims that he first advised the open treatment of the duct, but it is known that he is in error as the operation has been urged for the reasons he gives, in this country, since the early part of 1892, at which time experiments were conducted by me on the lower animals and reported to the American Medical Association. At that time and for some years afterwards it was admitted by surgeons that the operation would succeed on normal organs with normal bile, but not otherwise. I afterwards induced pathologic changes in the biliary passages and demonstrated that the operation was successful in infected and enlarged ducts. Experimental and clinical experience demonstrate conclusively the safety of the operation."

At the Indianapolis meeting, two years ago, Dr. Davis reported two cases in which hepatotomy had been done in obstruction to the biliary passages. The operation is indicated in cases of obstruction with enlarged liver where the gall-bladder or duct can not be isolated, if the patient's condition from exhaustion and cholemia will not permit of a protracted search for the bladder or ducts. After the patient's condition is better, a rapid operation may be done. It will only exceptionally be called for, and the cases will be fewer as the surgeon's experience increases in choledochus operations; for he will then be enabled to better locate the bladder and ducts so much changed by inflammatory processes. In addition to the above indications, he thought the operation should be resorted to in hepatitis before it has reached the stage of pus formation, if the liver does not rapidly become smaller after drainage of the biliary reservoir of the duct. His attention was first attracted to the value of the procedure in a case in which the amount of pus removed was not more than half an ounce, but in which the division of the biliary canals resulted in the escape of large quantities of bile for many weeks. In December, 1898, he had done hepatotomy on one case in which there was a movable stone in the common duct, and in the same month in a case of obstruction of the hepatic ducts by malignant disease.

In July and August of this year he had conducted a number of experiments on dogs to determine the value of incisions in the liver in relieving biliary obstruction. Five dogs were killed and the liver injected with fluid either through the gall-bladder, the common duct having been tied, or through the common duct. Incisions were then made in all parts of the liver, with the result that streams of the fluid would issue from the bile canals and general oozing of the fluid from the wounded surfaces of the organ if much force was used. Six were anesthetized and the liver injected as above, and this fluid with blood would flow, as a rule, freely when much force was used in injecting the fluid. Four had the common duct tied, and after twenty-four hours the same experiment was conducted under anesthesia, with similar results. In nine the common duct was ligated and gauze packed around the field of the gall-bladder and ducts. After from twenty-four hours to a week the liver would be incised in one or more places, and as a rule the bile escaped satisfactorily through the gauze. It would be very dark after prolonged obstruction. Two of the dogs died and the others were killed in from five days to two weeks. Before killing them and while under the anesthetic, fluid was injected through bladder or duct, and would flow from the wounds which had been previously made in the liver and also from incisions made at that time. Five had the gall-bladder removed and the cystic and common ducts ligated, but as gauze was not used at the time of operation to wall off the general cavity, they died in from twenty-four to forty-eight hours from the escape of bile, with shock.

With the advance in choledochus surgery, the field for cholecystenterostomy grows smaller.

Dr. Davis was assisted in his experimental work by Dr. R. E. Hogan, of Birmingham.

SECOND DAY—AFTERNOON SESSION.

Gallstone in the Common Duct: Its Frequency, Symptoms, Diagnosis and Treatment.

DR. L. H. DUNNING, Indianapolis, Ind., quoted from the recent paper of Mosher, whose compilation of the Johns Hopkins Hospital records shows that gallstones are present in 6.94 per cent. of our population, and that in 13 per cent. of all cases of gallstones the calculus is arrested in the common duct. For convenience of description the author adopted the generally accepted classification of gallstone in the common duct, namely, 1, the acute form in which there is acute obstruction, transient jaundice, and the typical gallstone colic; 2, chronic obstruction of the common duct from lodgment of a stone somewhere in the course of the duct. The first division represents the old classical form of bilious colic and the symptoms are so well known that he did not enumerate them in detail. In chronic obstruction from gallstones the jaundice is more or less intermittent and there is pain in the hypochondrium, epigastrium and back. The pain is not so severe as in acute obstruction, and is very irregular. It may be located in the epigastric or lumbar region. As a rule, there is absence of a tumor in the gall-bladder region, but marked soreness. There is marked loss of weight, and frequently chills and intermittent fever. The Carlsbad cure, a sojourn at the French Lick Springs, large draughts of oil, the application of hot fomentations to the hypochondrium, and opiates to relieve pain are all of benefit in

the acute cases. The chronic cases are amenable to surgical treatment alone. The author cited and remarked upon the various methods of surgical procedure. Choledochotomy was shown to be the most approved method when applicable. The middle third of the duct is the point of choice for the incision. When the stone is in the duodenal end of the duct, it can usually be crowded back into the middle portion and removed through an incision in that part. An incision through the cystic duct may be carried onward into and through the common duct if the upper portion be chosen for the line of incision. Duodeno-choledochotomy is applicable to cases of a large fixed stone in the duodenal extremity of the duct. This method yields a higher rate of mortality than simple incision of the choledochus. Only soft stones should be crushed, and needling is unsatisfactory. The writer would reserve cholecystenterostomy in common duct obstruction for those cases in which the patients could not endure the longer operation of choledochotomy. Four cases were reported in detail.

DR. GEORGE S. PECK, Youngstown, Ohio, reported some cases of extrauterine pregnancy, and presented specimens.

DR. M. ROSENWASSER, detailed a case of tubal pregnancy upon which he operated in the eighth week, immediately before the occurrence of rupture.

Acute Pancreatitis and Fat Necrosis.

DR. EDWARD J. ILL, Newark, N. J., reported a case because of the rarity of the disease and the interest attached to the operations for this ailment. The patient was a woman, 43 years of age, with the usual history of gallstone colic. She was taken sick suddenly with excruciating pain in the epigastrium, excessive vomiting and obstruction of the bowel. In twelve days after the onset of the disease a tumor was made out. The patient was operated on the twentieth day after the onset of the disease. The diagnosis was perforative inflammation of the gall-bladder, although a pancreatitis and fat necrosis was suggested. The patient's urine contained bile, albumin, and granular casts, with a specific gravity of 1028. It contained no sugar. The operation consisted of a right lateral abdominal section, and an opening between the stomach and the transverse colon through an immensely thickened omentum. Fluid was reached at the head of the pancreas, which was drained through a rubber tube and iodoform gauze. The whole pancreas seemed to be involved in the disease. The omentum upon section showed whitish-gray nodules containing brown roundish spots. For a time the patient seemed to do well, but in about seven weeks she had a relapse from which she died in three weeks. A second operation was done for her relief. At the postmortem it was shown that there were four gallstones in the gall-bladder and only a small mass of substance of the pancreas was left. The author went extensively into the literature of the subject. He mentioned especially the work of Balser, Fitz, Langerhans, Korte, Hildebrand, Robson and others.

Early Operation in Appendicitis and Method.

DR. JOSEPH PRICE, Philadelphia, in the last three months had operated on about one hundred cases of this disease. Seventy-five per cent. had been managed by open treatment. All of them had been explosive cases and none of the operations was done the first or second day. In two ball-players the operations were done on the third day. In both cases he found gangrenous appendicitis with perforations, and general peritonitis. Both were recognized and could have been operated on twenty-four hours early. He was satisfied that there was but one treatment for this disease—early, clean removal of the appendix. The choice of method should not worry operators. A pair of scissors with needles and fine thread was all that was necessary. The appendix should be cut off smooth with the cecum, and the opening closed with fine silk. This summer the operations had been done by him chiefly on children between the ages of 8 and 20. About 75 per cent. were boys—fine, athletic chaps; and about 25 per cent. girls. A large number of the latter were menstruating at the time of the operation. In some instances it complicated the diagnosis. The disease had been quite common and fatal at summer resorts. A large number of operations had been done at Atlantic City, and a few patients were sent home for operations. The interval operation had done much to mislead the general practitioner, and much to complicate operation, in which there should be no complications.

THIRD DAY—MORNING SESSION.

Vaginal Hysterectomy with Four-and-a-Half Months' Pregnancy and Closed Cervix.

DR. J. HENRY CARSTENS, Detroit, reported a case. The patient was a woman, Mrs. D., only 26 years of age, mother of three children. She was afflicted with some inflammation and ulceration of the womb. Finally a diagnosis of cauliflower growth was made by a practitioner. The cervix was removed in February, 1900. She recovered and improved very much in health; menstruation continued regularly, but during the summer, about six months later, she again had trouble. On examination a recurrent growth was found. This was treated by curetting and strong cauterization, the latter being continuously and vigorously applied. Examination revealed a large uterus such as is found in cases of pregnancy at four and a half months, well marked placental bruit, enlargement of the breasts, etc. The upper end of the vagina was absolutely closed by a cicatrix, as is found after vaginal hysterectomy. There were two nodules, the size of a hazelnut and a bean. By allowing the pregnancy to continue the malignant growth would probably have closed up the vagina and a Cesarean section would be necessary, and the cancer would have so far advanced that there would be little chance for permanent recovery. Hence a prompt operation seemed necessary, but how? If there had been an opening he would have had the physicians insert a catheter and bring on premature labor a week before and then remove the uterus. Having the patient under chloroform he plunged a scissors into the place where he thought the os ought to be. By separating them and stretching the opening with his finger, he tore the sac. By enlarging the opening he had no further trouble in delivering the fetus. By pressing the womb the placenta was soon delivered, although the hemorrhage was profuse for a few minutes, but the uterus contracted firmly, and there was no further trouble. In tearing the opening he fortunately ruptured into the cul de sac. This served as a guide for him to work, and although the uterus was very large, he finished the operation and did a vaginal hysterectomy. Patient recovered and is well to-day.

Indications, Technic, and Remote Results of Salpingostomy and of Resection and Ignipuncture of the Ovaries.

DR. A. GOLDSPOHN, Chicago, read a paper on this subject, and presented tables of 104 cases. The conclusions of the author are as follows: 1. In patients who are not near the menopause and who are not tainted by tubercular or malignant disease, one or a part of one or both ovaries can frequently be preserved, with or without the retention of the corresponding tube, in the following conditions: (*a*) In follicular cystic degeneration or partially cirrhotic induration due to inflammatory processes or other circulatory disorders; (*b*), in extirpating parovarian cysts, dermoid and fibroid tumors with or without the uterus; (*c*) with great caution, in the extirpation of non-papillary glandular cystomata, that are devoid of surface papillomata and other evidences of malignancy. 2. Necessary for success in the resection of the uterine adnexæ is the exercise of asepsis of the highest degree, and the use of a minimum amount of fine and readily absorbable suture material exclusively and judiciously, as to tension. 3. A generous median ventral incision provides the best access for the conservative treatment of the adnexa in cases where septic accumulations in the parts are not absent, and when extreme fixations of the parts abound. When these more extreme complications are not present and a retroversion of the uterus exists, the resection of the adnexa is most easily effected by way of the dilated internal inguinal rings in conjunction with a thorough Alexander operation. 4. Vaginal celiotomy does not provide a favorable access for conservative surgical treatment of ovaries and tubes. It does frequently admit of ignipuncture, but is not auspicious for resection of ovaries. 5. Resection, with the care and technic alluded to,

is the most radical and most conservative measure, and should be practised when the parts are sufficiently accessible without undue traction upon their lateral supports, and when asepsis in the surrounding wound and in the general execution is reasonably assured, otherwise thermo-cauterization is probably better.

DR. C. C. FREDERICK, of Buffalo, N. Y., read a paper in which he narrated some very rare and old cases and experiences in pelvic and abdominal surgery, and the lessons they taught him.

DR. CHARLES GREENE CUMSTON, Boston, reported two cases of hour-glass stomach, and discussed the pathology and treatment.

Personal Experience with Uterine Fibromyomata.

DR. HENRY D. INGRAHAM, Buffalo, mentioned a large number of cases of uterine fibroids which he had treated by various methods during the past sixteen years. Although he had used ergot freely in many cases, it was only in a very few that it had any effect on the hemorrhage, and possibly hydrastis had in some cases. Stypticin had in his experience appeared to check the excessive flow better than any other drug. He had not obtained any special benefit from the use of the thyroid extract or desiccated mammary gland, and considered their use dangerous on account of their effects upon the general health of patients. He had formerly used electricity with benefit, but did not use it now as the results were not satisfactory. He had had seven cases of quite large fibroids complicated with pregnancy. In five, miscarriage occurred spontaneously. In one it was induced, and in the other the growth almost completely filled the pelvic cavity, the four and one-half months' fetus being above it, so that a hysterectomy was necessary. Patient recovered. One case was mentioned of an unmarried woman who was 64 years of age before the fibroid began to show signs of its existence. For some time it was dense and hard and grew slowly, but for the past few months it had become cystic and increased in size rapidly. This patient manifested several cerebral symptoms on three different occasions, which the author believed were due to some particles of the disintegrating tumor becoming detached, and were carried to the brain, producing these symptoms. On one occasion patient lost sense of motion and sensibility of the right side for over two weeks, and did not know the members of her own family for the same length of time. During the height of this attack the temperature was 101 F., and pulse 96. A year later she had a similar attack, and a few months ago another one, but milder, with no rise of pulse or temperature. He believed that fibromyomata, although considered benign in contradistinction to malignant growths, were by no means harmless, but exposed the patient to great and increasing risk. All cases of fibroids should be carefully watched. If they were not giving any trouble or increasing in size, they should be let alone, but the patient should be kept under observation. When they gave rise to trouble, or if the growth increased in size, then the proper thing to do was to remove it before dangerous complications occurred. If there were adhesions or necrosis of the tumor or pyosalpinx, then the danger of the operation was greatly increased. If cardiac disease or hydronephrosis resulted as a complication, the removal of the tumor would not relieve those conditions. Waiting for the menopause to relieve the diseased condition was often like holding out false hopes to the patient, as the trouble might become worse then than before, or it might all develop after that period, as was shown by the recital of the last case reported by the author. If any treatment was necessary and the patient was in a suitable condition, a radical operation should be done. There was no excuse, in his opinion, whatever for palliative or temporizing treatment at the present day.

Officers.

The following officers were elected for the ensuing year: President, Dr. Edwin Ricketts, Cincinnati, Ohio; vice-presidents, Drs. Charles Greene Cumston, Boston, and Miles F. Porter, Fort Wayne, Ind.; secretary, Dr. William Warren Potter, Buffalo, N. Y.; treasurer, Dr. X. O. Werder, Pittsburg, Pa.

Washington, D. C., was selected as the place for holding the next annual meeting in 1902.

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment will be answered in these columns.]

Treatment of the Breasts During Pregnancy and Lactation.

TO PREVENT SORE NIPPLES.

Beginning five or six weeks before the expected time of confinement and continuing its use daily until confinement, lanolin applied externally with friction every night is of great value. The nipple should be thoroughly washed in the morning with pure soap and water, then rinsed off and well dried. The following may be applied locally during the first week or two of nursing:

R.	Tinct. benzoini comp.	℥ss	2
	Olei olivæ	℥ii	8
	Lanolini	℥vi	24

M. Sig.: To be applied after nursing, three or four times a day.

FISSURES OF THE NIPPLES.

That fissures of the nipples cause very great pain occasionally it is not necessary to state. These fissures are either located at the apex or base of the nipple and cause the mother great suffering when the infant attempts to nurse.

As has been stated by many authorities, cleanliness is the first thing to be observed. The breasts and nipples should be thoroughly washed with some antiseptic such as boric acid solution. This should be done both before and after nursing; the mouth of the infant should also receive proper attention so as to guarantee against any infection from that source. If only one nipple is involved it should be given a rest for a few days and the breast pump used to relieve the breast. An ointment composed of the following will be of great service to hasten the healing process.

R.	Bismuthi subnit.	℥iii	12
	Tinct. benzoini comp. q. s. ad	℥i	32

M. Sig.: To be applied locally night and morning.

Or an ointment composed as follows may be prescribed as used by Hirst:

R.	Iodoformi	gr. x	66
	Ung. zinci oxidi	℥ss	16
	Ichthyol	℥i	4
	Lanolini		
	Glycerini, āā	℥iss	6
	Olei olivæ	℥iiss	10

M. Sig.: Apply locally night and morning.

P. Grossman, Omaha, clinic, recommends the following:

R.	Bismuthi subgal.	℥ii	8
	Olei ricini	℥ii	8

M. Sig.: Apply locally night and morning.

He states that it is not necessary to thoroughly cleanse the breast before the child receives the nourishment.

Teisseire, as noted in *Cyc. of Pract. Med.*, recommends orthoform dressings in treatment of fissured nipples. He dusts the powdered drug over the wound and covers it with a compressed layer of the remedy. Over it is placed a layer of absorbent cotton and rubber sheeting, the whole being kept in place by a bandage. Before nursing, the breast should be thoroughly cleansed with warm boric acid solution. The orthoform dressing renders an analgesic effect as well as a curative process.

TO PREVENT FISSURES.

The following application used twice daily will render the nipple and breast firm and less tender:

R.	Glycerol tannici		
	Aq. destil, āā	℥i	32

M. Sig.: Apply locally night and morning.

When the fissures have been formed they may be touched with the following solution:

℞ Argenti nitratis ..... gr. x | 66
Aq. destil. ..... ʒi 32 |

M. Sig.: Apply locally with an applicator once every other day.

The following is of service as a wash:

℞ Hydrarg. iodidi ..... gr. i | 06
Alcoholis ..... ʒvi 24
Glycerin
Aq. destil, ää ..... ʒviii 256 |

M. Sig.: Use as a wash night and morning.

MASTITIS.

Probably the first thing noticed in beginning mastitis is a hard mass, or what is ordinarily called a "cake breast." This may cause, at first, no subjective symptoms except probably when the infant is at the breast. In a short time the hard mass is painful upon pressure, redness may appear superficially, accompanied by swelling. This is followed by fluctuation. As soon as this is detected active procedures should be commenced at once. And at this point we can not speak too strongly against the applications of poultices in any form. On the other hand, when pus is detected it should be evacuated as early as possible. In making an incision it has been dwelt upon by many to make the incision radiating from the nipple toward the periphery as the spokes of a wheel radiate from the hub. In this way the lacteal ducts are not interfered with and the incision is devoid of any great danger. Drainage and thorough cleansing should be subsequently properly carried out.

Puerperal mastitis tends to recur with each confinement. Traumatic lesions also predispose to puerperal mastitis. Infected cracks or fissures of the nipple are by far the most frequent causes of mastitis. Dr. E. P. Davis recommends that the breast and nipple be washed with castile soap and warm water, the nipple drawn out by the thumb and finger and a suitable antiseptic ointment applied. Stasis of milk in the breast must be prevented. He recommends a solution of boracic acid to preserve the nipples in an aseptic condition. He also states that it is better to err on the side of too early incision than to delay too long. Under no circumstances should the child nurse the affected breast. The same germs which infect the breast may infect the gastro-intestinal tract of the infant.

C. S. Bacon, of Chicago, in an article in *New York Med. Jour.*, states that general precautions consist in washing thoroughly the nipple before nursing and bathing thoroughly with a 75 per cent. solution of alcohol, after nursing, to protect the nipple from abrasions and accidental infections from the mouth or skin of the child. He chooses alcohol as a disinfectant, because it is harmless to the child, and at the same time efficient. He also recommends the nipple shield as of great importance in the prevention as well as the cure of nipple wounds. If the nipple wounds do become infected, but no symptoms of general infection or involvement of the deeper breast, the local wound should be treated like wounds in any other part of the body. The application of cotton saturated with alcohol is usually sufficient, but the appearance of chills and fever indicates deeper infection of the breast. When these symptoms appear Dr. Bacon restricts nursing from the affected breast and supports the breast with a proper bandage. With this treatment he states that from 80 to 90 per cent. of the cases will terminate without abscess formation, and if an abscess does form it will be localized to one lobe as a rule. If pus formation is suspected he recommends that the hypodermic needle be used to determine its presence; and if the abscess is present, however small, it should be opened at once. If in doubt, continue the support and ice-bag to the breast. This will limit its formation and the pain. He denounces the treatment by poultices, which allows a considerable portion of the breast to become involved and broken down. He recommends that a few drops of Schleich's solution be injected beneath the skin, making the line of incision anesthetic. The pus should be washed out with sterilized water and small amount of sterilized gauze introduced for drainage. This may be removed in twenty-four hours and the wound kept open for one or two days by irrigation, when it will usually close itself.

Dr. Rubeska, in *Centralblatt f. Gynekologie*, states that in 3152 nursing women he has observed 1244 cases of sore nipples. He recommends, as treatment, the use of compresses moistened with a 3 per cent. solution of boric acid and covered with gutta percha. He states that lactation was continued in almost all the cases, the nipple being simply protected with a shield. In three-fourths of the cases the trouble subsided within ten days, and mastitis developed in less than 2 per cent. of the cases. He further states that when mastitis did develop the breast was thoroughly disinfected, and compresses damp with a solution of bichlorid of mercury, one-half per cent. strength, were constantly applied for three hours; the first milk was drawn artificially with the pump and the ice-bag afterwards applied. If the signs of inflammation first developed with a chill followed by a high temperature accompanied with pain he immediately ordered an injection of a 3 per cent. solution of carbolic acid into the affected breast, as much as two or three Pravaz syringefuls being injected at one time. If the trouble began less severely this was not carried out unless the pain and temperature continued longer than forty-eight hours. He states that suppuration took place in only two cases following this treatment, and no harm was done in any case.

Hirst states that if the abscess is opened early one incision commonly suffices. If the case is neglected every pocket of pus must be opened and every sinus drained to secure a permanent cure. The incision should radiate from the nipple and the area of pigmentation should be avoided as far as possible or the incision should be confined wholly within this area as the pigmentation will follow the cut, disfiguring the breast. The abscess cavities should be compressed, after being opened, by a firm binder and the wound irrigated daily with sterile water.

In threatened mastitis the following ointment may be of benefit in some cases:

℞ Ichthyol ..... ʒiv 16
Ung. hydrarg. ..... ʒiv 16
Ung. belladonnæ ..... ʒss 16
Cerato plumbi subacetat. ..... ʒi 32

M. Sig.: Apply locally three times daily.

Proper attention to elimination in such conditions as the foregoing should not be neglected. Elimination should be promoted by the bowels and kidneys. Salines should be administered until free action of the bowels is produced. The following may be used under the same conditions as the above:

℞ Zinci oxidi
Ung. belladonnæ ää ..... ʒss 16
Ichthyoli ..... ʒii 8

M. Sig: Apply locally twice or three times daily.

GALACTORRHEA.

The following is sometimes applied locally in connection with supporting treatment of the breast:

℞ Ung. belladonnæ
Lanolini ää ..... ʒiv 16

M. Sig.: Apply locally twice daily.

Medicolegal.

Non-Expert Witnesses in Inquiries as to Sanity.—The Supreme Court of Alabama holds, in the murder case of Caddell vs. State, that on an inquiry of sanity or not, the rule applicable to non-expert witnesses is that opinions opposed to sanity are admissible only when stated in connection with the facts respecting the conduct, abnormal or otherwise, of the person whose sanity is questioned; but opinions affirming sanity may be based on a mere negation of unnatural or peculiar conduct, without a specification of facts.

No Damages Recoverable for Injuries to Unborn Child.—The Supreme Court of Rhode Island holds, in the case of

Gorman vs. Budlong, that one can not maintain an action for injuries received by him while in his mother's womb; and that, consequently, his next of kin can not maintain an action, after his death, therefor, under the statute of that state, which provides that whenever the death of a person shall be caused by the wrongful act, neglect, or default of another an action may be maintained for damages if he could have maintained one had death not ensued.

The Testimony of Paid Medical Experts.—The Supreme Court of Tennessee holds, in the case of Bateman vs. Ryder, that there was no error in the trial judge charging the jury that "the testimony of experts introduced for the purpose of establishing insanity or mental unsoundness, if paid for, should be received with great caution and carefully weighed by the jury," the judge charging further, upon this feature of the case, that "it was lawful and proper for an expert physician to charge a reasonable compensation or fee for his professional opinion or services."

Not Required to Refund Cost of Medical Treatment.—Without passing upon the question of whether or not it is necessary, as a condition precedent to the commencement of an action in a personal injury case where a release has been signed, that the money paid therefor should be refunded, it being alleged that the party was in such a condition when he signed it as not to understand what he was doing, the Supreme Court of Colorado holds, in Town of Colorado City vs. Liafe, that, no money having been received, the only consideration for the release being the furnishing of surgical and medical treatment and care at a hospital, it is not necessary for the injured party to ascertain the amount paid to third parties therefor in his behalf and to refund same before commencing his action. It thinks it enough, as well as proper, that the jury be instructed that if he is given a verdict the amount shown to have been paid for his benefit under the terms of the release should be charged against him.

Mental Injury from Wilful Wrong.—The first appellate division of the Supreme Court of New York holds, in the case of Williams vs. Underhill, that the rule that damages resulting from fright alone, or for mental suffering disconnected from other injuries, can **not** be recovered, applies only to actions based on negligence, **and not** to cases of wilful tort or wrongful acts. The reason for limiting liability in actions for negligence, it says, is founded in the principle of law governing such actions, namely, that the measure of damage shall be confined to the natural and probable consequences of the act or omission constituting the cause of action, while the distinction between such a case and one founded upon a wilful tort, such as an assault, is very clear. So, evidence having been admitted in this case, without objection, which tended to prove the commission of an assault, and that prior to the same the party suing for damages therefor had been a person of unusual mental strength, the court holds that it was error to exclude testimony offered to show the effect of the assault upon her mental condition, and of the medical treatment received by her therefor, even if she had limited her claim to damages for mental injuries resulting from fright alone.

Authority Required for Compulsory Vaccination.—As a question never before raised in that state, the Supreme Court of Michigan takes up, in the case of Mathews vs. Board of Education, that of the validity of compulsory vaccination of school children. It appears that in 1894 this Kalamazoo school-district board enacted the following rule: "No pupil shall be admitted into any public school who can not furnish satisfactory evidence that he or she has been vaccinated or otherwise secured against smallpox, and no pupil affected with any contagious disease, or coming from a house where such a disease exists, shall be allowed to remain in any public school." This rule continuing in force, a Christian Scientist brought this suit, denying its validity. The court, however, does not feel called upon to discuss the question of his religious scruples. It points out that, inasmuch as the law of the state makes it the duty of the child to attend school, and of the parent to send him, under penalty of fine or imprisonment, or both, the effect of the rule referred to would be to compel the vaccination of the child, or subject him and the parents to the penalties of the law, the practical result of which would be to give the board of education the right to compel compulsory vaccination, if the rule could be sustained. Wherefore, the legislature not having undertaken to give the board the power, when no epidemic of contagious disease exists or is imminent in the district, to pass a general, continuing rule which would have the effect of a general law excluding all pupils who will not submit to vaccination, the court, divided three to two on the proposition, holds that the school board exceeded its power. At the same time, it does not mean to intimate that during the prevalence of diphtheria or smallpox, or any other epidemic of contagious disease, in a school district, the board may not, under its general powers, temporarily close the schools, or temporarily say who shall be excluded from the schools until the epidemic has passed. Again, it says that in the absence of any statute authorizing compulsory vaccination, or which requires vaccination as one of the conditions of the right or privilege of attending the public schools, it thinks it can not be maintained that the rule relied upon was a valid exercise of the rightful powers of the State Board of Health. Its powers, though quite general in terms, must be held to be limited to the enforcement of some statute relating to some particular condition or emergency in respect to the public health; and, although they are to be fairly and liberally construed, yet the statute does not, either expressly or by fair implication, authorize the board to enact a rule or regulation which would have the force of a law changing the statute in relation to the admission, and right of pupils of a proper school age to attend the public schools. It is not a question, the court continues, as to what the legislature might do, under the police power, about requiring vaccination as a prerequisite to attending school; nor is it a question of whether the legislature could confer this power upon the school board. To lawfully exclude children from the public schools for the cause relied on requires such a change in the existing law as the legislature alone can make.

Current Medical Literature.

Titles marked with an asterisk (*) are noted below.

Philadelphia Medical Journal, September 14.

1 The Employment of the Recuperative Power of the Heart as an Estimate of Its Functional Ability. Martin Mendelsohn.
2 *The Principles of Treatment of Tuberculous Laryngitis. St. Clair Thomson.
3 *The Treatment of Tuberculosis with Urea. Arthur H. Buch.
4 Undiluted Milk in the Chronic Gastroenteritis of Rachitic Infants. Maurice Ostheimer.
5 Unusual After-Effects of Snake Bite. Lawrence E. Holmes.

Medical Record (N. Y.), September 14.

6 The Origin and Formation of Fibroid Tumors of the Uterus. Mary A. Dixon Jones.
7 Some Observations on Modern Cardio-therapy. Homer Wakefield.
8 *The Functions of the Tonsils, with a Few Suggestions Regarding the Differential Diagnosis of Tonsillar Affections. R. C. Matheny.
9 A Unique Specimen of Vesical Calculi. F. C. Larimore.

American Medicine (Philadelphia), September 14.

10 Wounds of the Thoracic Duct Occurring in the Neck; Report of Two Cases; Résumé of Seventeen Cases. Dudley P. Allen and C. E. Briggs.
11 The Practical and Scientific Value of the Blood Examination to the Medical Man and Surgeon. (To be concluded.) Robert N. Willson.
12 Condition of Epileptics in Pennsylvania. Wharton Sinkler.
13 *Modern Experience vs. Ancient Tradition Concerning Alcohol as a Beverage and Medicine. H. D. Didama.
14 *Atropia as an Efficient Aid in Relieving Acute Pulmonary Edema. Charles O'Donovan.
15 A Note on Bacillus Coli Communis in a Possibly New Rôle as an Inhibitor of HCl in the Stomach. G. W. McCaskey.
16 The Eye Complications in a Case of Ankylostomiasis. Howard F. Hansell.
17 The Lane Lectures on the Social Aspects of Dermatology. Malcolm Morris.

18 Intraspinal Cocainization: A Critical Review of Some of the Most Salient Points in This Method of Analgesia, as It Applies to General Surgical Procedures. Burdett A. Terrett.

New York Medical Journal, September 14.

19 *The Lane Lectures on the Social Aspects of Dermatology. Malcolm Morris.
20 *Professor Max Schüller's Views on Malignancy. James Eddy Blake.
21 The Clinical Diagnosis of Carcinoma of the Esophagus, and the Technic of Gastrostomy. Charles G. Cumston.

Boston Medical and Surgical Journal, September 12.

22 The Use of Gynecology by the General Practitioner. Edward Reynolds.
23 Some Cases of Cancer Treated by the X-Rays. Francis H. Williams.
24 *General Anesthesia in Operation upon the Nose and Throat —Nitrous Oxid Chloroform and Ether. F. E. Hopkins.
25 *Eosinophile Leucocytes and Nuclein Bases. Edward T. Williams.
26 Discussion upon Climatic Treatment of Pulmonary Tuberculosis versus Home Sanatoria. S. G. Bonney.

Medical News (N. Y.), September 14.

27 A Case of Foreign Body in the Esophagus. Russell S. Fowler.
28 Infantile Atrophy. John Lovett Morse.
29 *The Treatment of Cystitis. Chas. Chassaignac.
30 Medicinal Treatment of Diabetes Mellitus. Archibald Dixon.

Cincinnati Lancet-Clinic, September 14.

31 *Rheumatic Fever in Children. E. W. Mitchell.
32 Small Ovarian Cyst with Rather Unusual After-Complications. Magnus A. Tate.

St. Louis Medical Review, September 14.

33 Open-air Treatment of Pulmonary Tuberculosis in Arizona. R. S. Slusher.

Northwestern Lancet (Minneapolis), Septemoer 1.

34 The Advance to Realism in Medicine. A Short History. Franklin Staples.
35 Inflammation of the Ear. L. H. Munger.
36 The Hospitals of Hamburg and Berlin. George G. Eitel.
37 Report of a Case of Acute Transverse Myelitis. E. H. Bayley.

Virginia Medical Semi-Monthly (Richmond), August 9.

38 *Malarial Infection and Its Prevention. Walter Shropshire.
39 The Positive Value of Antidiphtheritic Serum as a Remedial Agent, with Illustrative Cases. G. A. Davis.
40 *Ventral Fixation for Anterior Displacements of Uterus—An Original Operation. Jacob Michaux.

Medical Age (Detroit, Mich.), August 25.

41 *Some Observations on the Treatment of Hypertrophic Rhinitis. Charles M. Robertson.
42 Sarcoma of the Uterus, Involving Broad Ligaments, Mesentery, Intestine, Omentum, and Abdominal Wall, Including Rectus Muscles and Skin; Excisions; Recovery. P. D. Hughes.
43 Some Surgical Cases (Carcinoma of the Pyloric End of the Stomach, Etc.). (Continued.) N. Senn.

Louisville Monthly Journal of Medicine and Surgery, September.

44 *The Importance of Milk Modification for Infant Feeding. Henry E. Tuley.
45 *Stricture of the Male Urethra. Henry H. Koehler.
46 *Tubercular Peritonitis. B. C. Frazier.
47 *Typhoid Fever in Infancy. J. B. Kinnaird.

American Journal of the Medical Sciences (Philadelphia), September.

48 *Filarial Lymphatic Varix. Eugene L. Opie.
49 *Granular Degeneration of the Erythrocyte. C. Y. White and William Pepper.
50 Report of Interesting Case of Aneurysm of Internal Carotid Artery. Walter B. Johnson.
51 *Hydatid Disease of the Breast. Robert G. LeConte.
52 *A Contribution to the Pathological Anatomy of Sporadic Cretinism. Frederick A. Packard and Alfred Hand, Jr.
53 *Pseudomembranous Inflammation of the Mucous Membranes Caused by the Pneumococcus. Charles Cary and Irving P. Lyon.
54 *Acute Splenic Miliary Tuberculosis. D. D. Stewart.
55 Note Upon a Case of Cardia Duplex in a Turkey. Allen J. Smith.

Annals of Surgery (Philadelphia), September.

56 *The Blood Changes Induced by the Administration of Ether as an Anesthetic. John Chalmers DaCosta and Frederick J. Kalteyer.
57 *Studies of Blood in Its Relation to Surgical Diagnosis. Richard C. Cabot, John B. Blake and J. C. Hubbard.
58 *Frequency of Recurrence of Sarcoma. John A. Wyeth.
59 Teratoma of the Testis. William B. Coley and Bertram H. Buxton.
60 Sacculated Aneurysm of the Superior Profunda Humeri Artery. L. J. Hammond
61 *Fracture of the Skull. Walter Lathrop.

Pediatrics (N. Y.), September 1.

62 *The Treatment of Pott's Disease in Childhood by Continuous Over-Extension of the Spine. Royal Whitman.
63 Three Cases Treated with Antistreptococcus Serum. M. Girsdansky.

University of Pennsylvania Medical Bulletin (Philadelphia), September.

64 The Comparative Virulence of the Tubercle Bacillus from Human and Bovine Sources. Mazyck P. Ravenel.
65 *Aneurysm of the Thoracic Aorta of Traumatic Origin; Treatment by Introduction of Wire and Electricity. DeForest Willard.
66 Wax Models—Their Preparation and Uses. Jay F. Schamberg and J. Frank Wallis.
67 *The Case Method of Teaching. Charles H. Frazier.
68 1. On the Diagnosis of Diphtheria; 2. A Double Stain for the Bacillus Diphtheriæ. Robert L. Pitfield.

Buffalo Medical Journal, September.

69 *Tubercular Disease of the Spine and Hip and Early Symptoms of Hip-joint Disease and Treatment. A. M. Phelps.
70 *Local Anesthesia. F. C. Floeckinger.
71 *Cough and Its Treatment in Pulmonary and Laryngeal Tuberculosis. Henry Levien.
72 *On the Frequency of Asthenopia—Especially in America. Lucien Howe.
73 Preliminary Notes on a Case of Abdominal Aneurysm. Marshall Clinton.

Pennsylvania Medical Journal (Pittsburg), August.

74 Address, Berks County Medical Society. E. W. Frankhauser.
75 Foreign Bodies in the Rectum—Two Cases. L. W. Atlee.
76 How We Should Provide for Our Tubercular Patients; with Report of Cases. Chas. F. Spangler.
77 Hysteria—A Clinical Study of Twenty Cases. Theodore Diller.
78 Eye Strain. P. J. Kress.

Medical and Surgical Monitor (Indianapolis), August 15.

79 *Some Relations of the Profession to Diseases of the Ear. J. F. Barnhill.
80 Report of a Case of Amnesia. Is It Somnambulism? Wm. B. Fletcher.
81 A Few Practical Points on Ether Anesthesia. Thos. B. Eastman.
82 Constipation in Infants. Charles R. Sowder.
83 Report of a Case of Concussion of the Brain Followed by Compression. R. H. Richards.

Quarterly Journal of Inebriety (Hartford, Conn.). July.

84 *Shall We Continue Striving to Improve the Environment of the Poor and Render Sterile by Mutilation, or Electrocute the Degenerates to Prevent Their Propagation of Their Kind? or Shall We More Directly Prevent Both Poverty and Degeneracy by Removing Their Chief Causes? N. S. Davis.
85 Modern Experience vs. Ancient Tradition Concerning Alcohol as a Beverage and Medicine. H. D. Didama.
86 A Recrudescence of Alcohol Worship. John Madden.
87 Some Recent Researches on Alcohol: Their Bearing on Treatment. J. Mackie Whyte.
88 Is Alcohol a True Food? Charles R. Drysdale.
89 Hydriatic Substitutes for Alcohol. J. H. Kellogg.
90 Alcohol in High Altitudes. E. Stuver.
91 The Pathology of Chronic Alcoholism. Henry J. Berkeley.
92 The Medical Profession and Total Abstinence. J. J. Ridge.
93 A Statistical Investigation into the Rôle of Alcohol in the Origin of Innate Imbecility. Dom. Bezzola.
94 The Poisonous Action of Alcohol in Some Nervous and Mental Diseases. Wagner V. Jauregg.

Journal of Medical Research (Boston), July.

95 *A Contribution to the Normal Histology and Pathology of the Hemolymph Glands. Aldred Scott Warthin.
96 *On Transplantation of Tumors. Leo Loeb.
97 On Progressive Changes in the Ova in Mammalian Ovaries. Leo Loeb.
98 A Preliminary Report Upon the Examination by Nissl's Method of Four Gasserian Ganglia Removed for Tic Douloureux. Frederick R. Bailey.
99 *Some Observations on the Biology of the Bacillus of the Pest. E. H. Wilson.
100 New Formation of Nerve Cells in a Cerebral Tumor-Neuroglioma. W. L. Worcester.
101 *The Frequency of Trichinosis in the United States. Herbert U. Williams.
102 On Certain Features of the Growth of Bacteria on Media Containing Sugars and Serum, with Remarks upon the Acid Production. E. Libman.
103 Suppurative Pylephlebitis, Associated with Anaerobic Microorganisms. Charles Norris.
104 *The Origin of Gas and Gas Cysts of the Central Nervous System. William Travis Howard, Jr.
105 *The Action of Proteolytic Enzymes on Bacterial Toxines. E. R. Baldwin and P. A. Levine.

106 Bio-chemical Studies on the Bacillus Tuberculosis. P. A. Levine.
107 Cell Proliferation Under Pathological Conditions, with Special Reference to the Etiology of Tumors. Isaac Levin.
108 Streptococcus Mucosus (Nov. Spec.?) Pathogenic for Man and Animals. William T. Howard, Jr., and Roger C. Perkins.
109 Remark on Primary Endothelioma of Lung and Pleura, with Demonstrations. I. Adler.
110 *Studies upon Bacteriolysis and Typhoid Immunity. Mark W. Richardson.
111 *Morphological Varieties of Bacillus Diphtheriæ. Frederic P. Gorham.
112 Classification of Intestinal Bacteria. W. W. Ford.
113 Cholesteatomata of the Brain. John J. Thomas.
114 *Malta Fever: A Report of Four Cases of Malta Fever in the United States Army and Navy General Hospital, Hot Springs, Ark., Among Soldiers and Sailors Returned from Tropical Stations, with Remarks on the Serum Reaction in Malta Fever. Joseph J. Curry.
115 On Some Undescribed Lesions in Lymphosarcomatosis (Hodgkin's Disease). Chas. F. Martin.
116 The Increase of Elastic Tissue in the Lung in Chronic Passive Congestion. Richard M. Pearce.
117 Necroses of the Liver. F. B. Mallory.
118 Report of Nine Cases of Infection with Bacillus Pyocyaneus. Roger G. Perkins.
119 Use of Solid and Liquid Paraffins on the Surface of Culture Media to Insure Anaerobic Conditions. W. H. Park.

St. Paul Medical Journal, August.

120 The Organization of the Profession. William Davis.
121 *Importance of Lacerations of the Pelvic Floor and Their Repair. William E. Ground.
122 A Consideration of Graves' Disease, and the Theories of Its Causation. George E. Senkler.
123 A New Absorbable Suture Material. E. M. Lundholm.
124 Medullary Narcosis. C. P. Thomas.

September.

125 *A Plea for Conservatism in the Treatment of Inflammatory Conditions of the Tubes and Ovaries. J. L. Rothrock.
126 *Is Cholecysto-colostomy a Feasible and Rational Operation? A. Shimonek.
127 Intussusception During the First Year of Infancy. Edward D. Keyes.
128 Report of a Case of Paralysis of Bladder and Rectum from Injury. A. L. Baker.
129 Menthol in the Treatment of Gastritis, with Report of Cases. G. E. Campbell.

Illinois Medical Journal (Springfield), September.

130 *Uric Acid Fallacies. Frank Billings.
131 Surgical Intervention in Intestinal Perforation in Typhoid Fever. George L. Eyster.
132 Doctors' Contribution to Science in the Past 100 Years. James L. Reat.
133 *Angioneurosis. Frank P. Norbury.
134 Potable Water. Arthur W. Palmer.

Inter-State Medical Journal (St. Louis), August.

135 Locomotor Ataxia. D. R. Brower.
136 The General Practitioner and Ophthalmology. John Green, Jr.
137 Erosions of the Stomach. M. D. Schmalhorst.
138 Intestinal Obstruction Following Abdominal Section. Edward W. Lee.
139 A Mildly Inflammatory Condition of the Skin Covered by Green Scales Probably Produced by the Bacillus Pyocyaneus. Martin F. Engman.

St. Louis Courier of Medicine, August.

140 *Congenital Dislocation of the Hip. E. H. Bradford.
141 A Study in Heredity. Alice M. Smith.
142 Etiology of Typhoid Fever, and Treatment in Private Practice. Granville E. Dickinson.
143 Ptosis of the Liver. Augustus A. Eshner.
144 Duodenal Stenosis Due to Gallstones; Report of a Case. Albert E. Taussig.
145 Tetanus Neonatorum; Report of a Case that Recovered. J. C. Falk.

International Medical Magazine (N. Y.), August.

146 Quantitative Determination of Urea. A. Robin.
147 Indications for Trephining the Mastoid Process. E. B. Gleason.
148 The Use of Chloretone in Epilepsy. D. J. McCarthy.
149 Points in Antepartum Hygiene. Wilmer Krusen.
150 Chronic Diarrhea, Due to Rectal Disease. (To be continued.) Samuel G. Gant.
151 The Prognosis and Treatment of Chronic Intestinal Catarrh. Boardman Reed.

Southern Medical Journal (La Grange, N. C.), August.

152 Treatment of Fistula in Ano. James M. Parrott.
153 The Office Treatment of Rectal Diseases. R. D. Mason.
154 Washing the Blood in Acute Uremia. Charles E. Nammac.

Journal of Medicine and Science (Portland, Me.), August.

155 The Woman of the Tenement and Her Three Great Enemies—Ignorance, Alcoholism and Tuberculosis. S. A. Knopf.
156 Mind. F. A. Hanson.

Bulletin of the Johns Hopkins Hospital (Baltimore), August.

157 The Medicine and Doctors of Horace. Eugene F. Cordell.
158 A Historical Note Upon Diphtheria as Carriers of Diseases—Pare-Declat. Howard A. Kelly.
159 The Fiftieth Anniversary of the Invention of the Ophthalmoscope. Harry Friedenwald.
160 The First Nephrectomy and the First Cholecystotomy, with a Sketch of the Lives of Drs. Erastus B. Wolcott and John S. Bobbs. Martin B. Tinker.
161 Measurement of the External Urethral Orifice. G. Brown Miller.
162 Tendon Transplantation. Sydney M. Cone.

The Physician and Surgeon (Detroit and Ann Arbor), July.

163 *The Etiology of Gallstones. Victor C. Vaughan.
164 *Clinical History and Diagnosis of Gallstones. William F. Metcalf.
165 A Symposium on Genito-urinary Diseases; Etiologic Factors in Gonorrhea. Thomas S. Burr.
166 Gonorrhea in Women. James G. Lynds.
167 Syphilitic Onychia. Frederic W. Robbins.
168 Bacteriologic Findings in Cystitis. Conrad George, Jr.
169 Sequelæ of Gonorrhea. Cyrenus G. Darling.
170 Treatment of Acute Specific Urethritis. Ralph H. Spencer.
171 Repair of the Vaginal Outlet at the Time of Labor. Richard R. Smith.

Indiana Medical Journal (Indianapolis), September.

172 *The Dry Method of Surgery. Edwin Walker.
173 Report of a Case of Pistol-Shot Perforation of the Intestines—Laparotomy and Recovery. John C. Sexton.
174 Aneurysm of the Cervical Portion of the Vertebral Artery. I. N. Trent.
175 Foreign Bodies in the Lungs. Theodore Potter.
176 Corning's Anesthesia Among the Insane. S. R. Cunningham.

New Orleans Medical and Surgical Journal, September.

177 *The Mosquitoes and Their Relation to Disease. Geo. E. Beyer.
178 *Some Observations on the Varieties and Habits of the Mosquitoes of New Orleans, and the Remedies. H. A. Veazie.
179 Intra-peritoneal Abscess of the Abdomen, Containing Pure Culture of Bacillus Typhosus—A Sequel of Typhoid Fever—Recovery. L. G. LeBeuf.

AMERICAN.

2. **Tuberculous Laryngitis.**—Thomson recapitulates the principles to be borne in mind in tuberculosis of the larynx, as follows: Pathology and clinical experience show that in the majority of cases the focus of infection is near or in the crico-arytenoid joint. Many cases present themselves only at the stage when local treatment is incapable of producing cure and we should keep the principle of doing no harm constantly before us in this affection. The most rational principle, according to our present knowledge, is to make an early diagnosis in its incipiency. Any suspicious laryngeal catarrh should be treated seriously on even a presumptive diagnosis. Once diagnosed, the patient should be treated on the principles laid down in modern sanatoria. Symptomatic treatment should be directed to any irritative, catarrhal or obstructive condition of the air passages. Silence should also be enjoined, the disuse of the voice being in proportion to the degree in which the focus of infiltration approaches or interferes with the arytenoid joint. Where the situation or extent of disease does not warrant an expectation of complete arrest of the process, treatment should be symptomatic, and sanatorium methods are unnecessary.

3. **Urea in Tuberculosis.**—After mentioning the general dissemination of tubercle bacilli and the universal exposure to it, Buch remarks that most of us must have some vito-From the observation that the kidneys are practically immune to any ordinary infection, and it must be a substance or element that is not harmful or foreign to the human organism. From the observation that the kidneys are practically immune to phthisis, Harper of Nottingham concluded to prescribe pure urea with a view of increasing the amount of urea and uric acid, and Buch follows this suggestion in his present paper, holding that urea is probably a substance which has something to do with this immunity. While it is impossible to understand precisely why and how it causes beneficial effects, he thinks there is sufficient clinical evidence already to show that it is beneficial, and he reports seven cases of tubercle infection that were treated with good results: either cured or with more or less disappearance of symptoms. In all the other cases in which he has used the treatment he had had similar good results.

8. **Functions of the Tonsils.**—Matheny pleads for the preservation of the tonsils, holding that these are really protective organs, ranged around the pharynx to protect the system against infections which may enter by that route. He does not admit that simply because a tonsil projects into the pharynx beyond the level of the faucial pillars, it is hypertrophied, or even if it is hypertrophied that it is dangerously pathologic. The question is whether it has lost its function and is inimical to life, and he lays down the conditions under which excision is justified, including mechanical obstruction produced either of the pharynx or Eustachian tube, and specially liability to recurring attacks of tonsillitis, where the function of the organs has been destroyed and degeneration has taken place, a condition in which the crypts have become filled with caseous matter, cases where lacunar ulcerations are present, when a quinsy habit has been acquired, cases of malignant disease of lupus or tuberculosis of the tonsils and where enlarged tonsils interfere with voice production. Also in some cases after the age of puberty there sometimes remains more or less fibrous tissue, occupying the tonsillar space which has lost its lymphoid characteristics, and partakes of the nature of a foreign growth inimical to comfort. The differential diagnoses of several of the different disorders given, such as acute follicular tonsillitis, herpetic tonsillitis, and ulcerative lacunar tonsillitis.

13. **Alcohol.**—Didama's article argues against the use of alcohol even in moderate doses, not only as a beverage, but also in medical treatment. He finds from his own personal experience that the non-alcoholic treatment of any disease is far more satisfactory than the alcoholic management formerly employed.

14. **Atropia in Pulmonary Edema.**—O'Donovan finds that atropia is a remedy that rapidly contracts the vessels, powerfully stimulates the sympathetic system, increases the force of the heart's beat, raises arterial tension, stimulates the respiratory centers, and dries up the secretions of the skin and mucous membrane. Its physiologic action can be easily gauged by watching the amount of dilatation of the pupil. It is well to supplement it with some drug that acts promptly and surely as a direct stimulant to the heart, strychnia preferably. In cases of acute pulmonary edema he has seen relief from the hypodermic injection of 1/100 of a grain of atropia with 1/50 of a grain of strychnin sulphate so immediate and complete that it seemed like magic. The pulse should be watched to see that the effect is not merely transitory. Time should not be wasted on remedies given through the stomach, but the hypodermic should be used at once.

19.—See also title 17.

20. **Malignancy.**—Blake gives an abstract of the recent work by Professor Schüller of Berlin, entitled "Die Parasiten in Krebs und Sarkom," in which he holds that he has found a parasite which can be grown in pure culture, readily identified, occurs invariably in tumors and is reproduced by inoculation. It certainly can not be identified with blastomycetes, but apparently belongs to a class of animal parasites of which practically nothing is known. Certain researches of the author tend to show that the non-malignant tumors are produced by somewhat similar parasites belonging to the same class, but under certain conditions they are transformed into the malignant form, or assume malignant qualities which result in the same proliferation of cells. The researches of Schüller tend to prove the infectious nature of the disease, but how it is propagated is absolutely unknown. Analogy would suggest that some form of the organism must exist outside of the body and many histories tend to confirm this view, but it remains for future study to settle this point. The parasite seems very sensitive to cold and ordinary antiseptics, therefore, the danger of infection during an operation must be slight, though the continued association with an infected person is more open to question.

25. **Eosinophilia.**—Williams calls attention to the association between eosinophile leucocytes and the spermine crystals first noted by Charcot and Leyden, and suggests that this may have a pathologic importance as indicating the decomposition of nuclein in the body. As to what cells are being decomposed it is not always easy to say.

29. **Cystitis.**—The treatment of cystitis depends upon the forms of inflammation, and Chassaignac, before taking these up seriatim, mentions certain general methods, such as rest, which is the more important the more acute the case; diet, which should be non-irritative, alcohol being excluded, the use of laxatives and baths; hot applications over the bladder, and intravesical irrigations and alkalines to diminish the normal acidity of the urine; anodynes and urinary antiseptics are also useful in the majority of cases, and the above measures are applicable in all stages and in all forms of cystitis. In gonorrheal cystitis, specific remedies such as salol, sandalwood oil, local treatment with potassium permanganate, etc., are advised. In the tuberculous form the prognosis is not good. He thinks that if ulceration is present, the patient's general condition being fair, a suprapubic cystotomy which will facilitate curettage and topical applications is advisable. The cystitis of stricture, prostatitis, calculus and tumor should be treated in addition to the general measures by the treatment of the local lesion. In traumatic cystitis the special indication is to keep the organ well drained in order to avoid complications due to leakage. Cystitis from direct infection is usually due to lack of care in the treatment and the precautions should be prophylactic. When the inflammation travels downward from the kidneys or ureter, only temporary results will follow local treatment of the bladder. Healing of the ureter or kidney and removal of these organs if necessary, are the only means of producing a cure. In cases of cystitis from irritants taken internally, their stoppage usually ends the disease.

31. **Rheumatism in Children.**—Several patients suffering from rheumatism in the same family are noticed by Mitchell who thinks that these indicate the infectious character of the disease. Three of the cases were children. He points out the special characters of the disorder in young patients and emphasizes the importance of protection of the heart and of guarding patients from relapses and recurrences after the first attack.

38. **Malaria.**—The treatment suggested for malaria by Shropshire is, first, "Stop every case of malaria at once by adequate doses of quinin, for the longer it runs the greater the number of gametocytes formed in the blood, and the greater danger is the patient as an infector. By adequate doses I mean not less than two grams of quinin, and that either in an acid medium, or followed by an acid that will make the medium acid after it is taken; for quinin will not absorb in an alkaline medium. When the paroxysms are broken the patient should be required to take one gram at bedtime and half a gram the next morning on every sixth day for two months or more, and to sleep under mosquito netting or in well-screened houses the remainder of the warm season in our country. Urge the drainage of all places calculated to afford larval development of the mosquito, and if drainage is impractical, treat them once a week with petroleum, even Beaumont oil would do." In addition, he says educate your patients up to these requirements and teach them that curing each case promptly lessens the danger to other members of the family and community.

40. **Ventral Fixation.**—The operation here claimed as original by Michaux is as follows: The abdomen was opened in the median line, the uterus taken out and carried somewhat back, the cervix was then dilated by an assistant, the organ was then put in the usual position for ventral fixation and stitched with two sutures to the lower end of the abdominal wound, but a little higher up than is done when the operation is undertaken for the relief of posterior displacements, with a view of straightening out the bend in the canal.

41. **Hyperthropic Rhinitis.**—The special points deduced from Robertson's consideration of the newer methods of treating this condition are: The uselessness of sprays, galvanocauteries, etc. 2. Where growths exist they should be treated as growths which appear elsewhere. 3. The saving of all the

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mucous sinus tissue possible, still securing breathing space. 4. The advantages of the use of suprarenal capsule. 5. The absence of danger of synechiæ, due to cautery, etc. 6. The use of dry pledgets of cotton and the disuse of all others. 7. The great advantage of the greased gauze as a surgical dressing in the nose over old methods. 8. The danger in the use of cocain lessened by the use of suprarenal extract. 9. The disappearance of nasopharyngitis after the nose becomes ventilated.

44.—See abstract in THE JOURNAL, xxxvi, p. 1726.

45.—Ibid.

46.—Ibid., p. 1727.

47.—Ibid., p. 1726.

48. **Filarial Lymphatic Varix.**—There seems to be little doubt but that this disease prevails to a limited extent in the Southern States, and may be acquired in this country. It has also been observed even as far north as Pennsylvania. Opie reports a case at length with postmortem findings. He calls attention to the fact that the lymphatic vessels throughout the varix were filled with blood and not with lymph, suggesting regurgitation at some point of connection between the venous and lymph systems.

49. **Glandular Degeneration of the Erythrocyte.**—The conclusions arrived at by White and Pepper are: "1. The granules are a constant finding in cases of lead-poisoning, and appear very early in cases under the influence of lead salts long before subjective or other objective symptoms can be demonstrated. 2. The granules disappear in cases of chronic lead-poisoning as the convalescence is established. 3. Apparently lead does not produce an immunity, as one of the cases worked for twenty-four years, another for twenty years, without having pronounced symptoms of lead-poisoning, and in both of these cases the granules were present in moderate numbers. 4. The granules may be produced experimentally in dogs, appearing in a very few days after the beginning of the experiment, and increasing as the intoxication becomes severe. 5. The granules in the experimental cases are rather fine, and show a tendency to clump at first; later, all varieties appear. 6. We believe these granules to be a true degeneration of the erythrocyte and having no relation to nuclear fragmentation or to polychromatophilia."

51. **Hydatid Disease of the Breast.**—Leconte reports a case occurring in a mulatto girl, aged 27, which was apparently the first of its kind in this country. He tabulates the published cases and finds that the disease is confined to women usually in early maturity or from the age of puberty to the climacteric. It is characterized by the appearance of a small, hard, painless tumor situated in any part of the surrounding tissue of the breast, freely movable and slow in growth. The firmness continues until it attains considerable size and even then its cystic nature is not apparent. The enlargement of the axillary glands, pain, irregular outline, and adhesions to the skin are characteristic of inflammation outside the sac and degenerative change leading ultimately to the death of the organism and spontaneous cure. The diagnosis is difficult and malignant growth often seems probable. The treatment should be always operative.

52. **Sporadic Cretinism.**—After reporting a case Packard and Hand call attention to certain points which seem to them of interest, namely, the rapid improvement under the use of specific drugs, thyroid extract, though the patient finally succumbed to acute disease, the system seeming unresistant. Besides the thyroid changes there was also an abnormally large hypophysis, a condition which has not been very frequent in such cases. Another point of special interest is the calcareous infiltration of the blood vessels of the thyroid which seems not to have been mentioned in the literature of similar cases.

53. **Pneumococcal Mucous Inflammation.**—The points of interest in the case reported by Carey and Lyon are the occurrence during the course of an attack of lobar pneumonia in a boy of 11 years, of a profuse pseudomembranous exudation of nearly all the mucous surfaces of the body open to inspection, caused by the pneumococcus. The case also showed signs of excessive adhesive pleuritis and marked and continued tympanites with discharge of membranous shreds in the stools, suggesting that the fibrinous process involved also the pleura and gastro-intestinal tract. In other respects the case was not remarkable, terminating by gradual lysis with recovery.

54. **Splenic Miliary Tuberculosis.**—Stewart reports the second case on record of splenic miliary tuberculosis apparently due to contagion. The patient had nursed a consumptive while suffering from the after-effects of la grippe, with reduction of bodily resistance. The patient's room was damp and cold. The nurse was constantly in attendance, lost much sleep and was poorly fed.

56. **Blood Changes from Ether.**—The assertion made many years ago that anesthesia has a destructive influence upon the blood has been the cause of experiments by various investigators and Da Costa and Kalteyer report the results of their own examinations in 50 cases, also of experiments on animals. The conclusions to which they arrive are given in substance as follows: 1. The number of red corpuscles is influenced by many factors associated with and accompanying the anesthetic state. The character of the change is, as a rule, polycythemia, rarely, an oligocythemia. These factors may be grouped into three classes. In each class when analyzed separately is found cause capable of producing an increase in the number of colored corpuscles. 2. The nature of this polycythemia seems best explained by a lessening of the watery element of the plasma, thereby reducing the total volume of liquor sanguinis, and causing concentration of the blood. They think it reasonable to infer that the polycythemia is not specially influenced by excessive proliferative changes which probably occur in the hematopoietic tissues. The increased blood production is an effort of Nature to rapidly restore the destroyed cells. 3. The three important factors incident to the polycythemia are (a) The period of preparatory operative treatment; (b) the anesthetic state; (c) the post-operative stage. 4. The blood inspissation is, as a rule, most pronounced immediately after the termination of the anesthetic stage. In some cases the anhydremia may be increased by each succeeding factor, or one of these factors may exceed the other. The variation existing between the plasma and corpuscles, though temporary, should be regarded as too pronounced to be within the physiologic limits. The relative increase in the number of erythrocytes is generally still present sometime after the operation, but not infrequently the readjustment occurs before this, and an oligocythemia may be present. 5. The hemoglobin is always reduced absolutely; in some instances there is an apparent increase, but this is never parallel with the rise in the number of red-blood cells. The individual corpuscular hemoglobin value is therefore reduced. This reduction in the color value of the chromocytes is most striking when compared with the blood decimal, determined sometime after the operation. We must conclude that etherization produces increased hemolysis, and in Nature's effort to rapidly replace the destroyed corpuscles, the regenerated cells are imperfectly supplied with hemoglobin. 6. The duration of the anesthetic state and the amount of ether may influence the blood changes; but the extent of the disturbances could not be determined on account of the many modifying factors. 7. The amount of blood loss, as encountered in this series of cases, does not seem to affect the blood. 8. Whenever possible, one or more blood examinations should be made before giving the general anesthetic, and these before preparatory treatment has been instituted. On account of the hemolysis which is shown by the fall in the corpuscular hemoglobin after operation, a very low percentage of hemoglobin must be regarded as a contra-indication to general anesthesia. The amount which should be regarded as a positive contra-indication is uncertain, and the authors think that below 50 per cent. is a dangerous level. In malignant disease and in cases where surgery might prolong life briefly, but can not cure, operation should not be performed under general anesthesia when the hemoglobin is below 50 per cent. They operated in two cases where it was below 40 per cent.,

but in each case a vital emergency existed, and in each case death on the table was narrowly averted. Mikulicz gives 30 per cent. as the lowest level at which operation should be attempted, but the authors give 40, excepting under stress or absolute necessity. In case of low percentage of hemoglobin local anesthesia should be employed whenever possible and in any case where the percentage is low, the ordinary preparatory measures should be employed in every way to avoid creating undue drain upon the blood. The anesthesia should be entrusted to an experienced hand and as little anesthetic used as possible. The operation should be performed rapidly, the proper measures taken to bring about reaction after it is completed, and oxygen should be inhaled to remove the ether quickly from the lungs and blood.

57.—See abstract in THE JOURNAL, xxxvi, p. 1490.

58. **Sarcoma.**—Wyeth calls attention to the malignancy of sarcomas and suggests that in his own practice he can recall but two cases that could in the strictest sense be called cured. He has collected the statistics of a considerable number of cases, including those reported by Chavasse, and finds comparatively few in which recurrence did not take place. The two cases mentioned by him as cured are reported at length.

61. **Fracture of the Skull.**—In concluding, Lathrop says that fracture, whether compound, depressed, or comminuted, should be treated by operation. In all simple fractures where the slightest indication of intracranial pressure or hemorrhage is present, operate. Even simple fractures followed by no symptoms need watching, and especial care to the general system. The prognosis in fractured skull is to be guarded, and to be guided by subsequent development. An abnormally low temperature followed by rapid rise is a bad sign, and coma, paralysis, deep, irregular breathing, and dilatation of the pupil are nearly always of fatal significance. A temperature at or above normal rising one or two degrees with regular respiration and full or slightly accelerated pulse is usually favorable.

62. **Pott's Disease.**—The object of Whitman's paper is to advance the proposition that horizontal fixation should be the routine treatment during the destructive stage of Pott's disease in early childhood, a doctrine which is not generally taught nor accepted.

65. **Aortic Aneurysm.**—After reporting a case in which, nine weeks after the operation, the man was well enough to leave the hospital with good consolidation of the anterior portion of the aneurysmal sac after the introduction of wire by the Corradi-Stewart method, Willard discusses the subject and analyzes the reported cases. He thinks while the operation produces few permanent cures, it at least lengthens life, and in all of those who survive the immediate effects relieves the individual symptoms. Considering that these cases are fatal if left alone, these results are certainly satisfactory. To conclude, he says that, in his opinion, it offers a more reasonable hope of success in bad cases of thoracic aortic aneurysm than any other method yet devised.

67.—See editorial in THE JOURNAL of September 21, p. 777.

69. **Tuberculous Disease of the Spine and Hip.**—Phelps describes the condition in detail and points out the approved methods of treatment, illustrating the orthopedic apparatus. The importance of symptoms is given by him in the following order: 1. Limit of motion. 2. Deformity with apparent or real shortening. 3. Limp. 4. Atrophy and bone disease. 5. Pain in the knee with absence of local disease. 6. Pain on joint pressure. 7. Night cries. 8. Flattening of buttock. 9. Heat. 10. Swelling. He opposes the use of the long traction splint and favors the use of the plaster-of-Paris without passive motion. We have outgrown the idea that fixation will produce anchylosis, but he also gives descriptions and illustrations of perineal crutches used by himself, which meet the indications of fixation and traction in the line of the neck without absolutely confining the patient. We should operate in case of tuberculous abscess whenever the capsule is ruptured, in rapid osteomyelitis, in all tense abscesses and wherever necrosed and carious bone is present; also in rapidly increasing abscess of the joint filled with tuberculous purulent material, when the abscesses are repeated in occurrence and in any case with rise of temperature; also whenever there is doubt as regards the diagnosis.

70. **Local Anesthesia.**—Floeckinger credits Corning with the first discovery of the method of local anesthesia, it having been subsequently developed by Oberst, Schleich, Braun and others, and describes his method of applying it in various conditions.

71. **Cough.**—The conclusions of Levien's article are that: "1. Cough, though one of many features in the make-up of tuberculous affections of the lungs and larynx should, however, receive special attention at the hands of the physician, because it is the most distressing and exhausting factor. 2. Of all the remedies and drugs in our experience, which would tend to ameliorate and suppress cough, we find in glyco-heroin an agent which to all appearances is a remedy par excellence, and we recommend its further trial."

72. **Asthenopia.**—According to Howe, asthenopia is more frequent in this country than abroad, which he attributes to the prevalent carelessness in the use of the eyes, overstrain in business, indigestion, etc. He also finds that a larger number of persons are relieved in this country; the American seeks relief in glasses earlier than do foreigners. The average American practitioner is better fitted to detect and meet the conditions and American ophthalmologists and opticians are better supplied with diagnostic appliances and stock for such cases.

79. **Ear Disease.**—The neglect of aural affections by the general practitioner is deplored by Barnhill, who pleads for a better natural understanding between him and the aural specialist. The common indifference of the public to these disorders, careless statements by physicians to patients, and the comparative lack of aggressiveness of otologists in presenting the importance of their work are, he thinks, responsible for the present state of things. Careless dismissal of a case with an ear-drops prescription and promise that a child will outgrow it, are causes of much later trouble. Morris' remark that if the graves of those who died of neglected appendicitis were marked with lights, graveyards would be well lighted, is applied by Barnhill to ear disease. He insists on the importance of attention to the patency of the Eustachian tube, and of early incision of the drum when needed in cases of acute aural disease. In chronic otorrhea the family physician is justified in attempting to treat it for a time, but after a few weeks' ineffectual trial he should call in the aurist.

81. **Ether Anesthesia.**—Eastman advises warning the patient that he will experience unusual sensations, choking, etc., but he must pay no attention to them. The best inhaler is that with the largest evaporating surface. Ether should never be used except from a freshly opened can, the room must be quiet, and the anesthetizing is best done in the patient's room. The more rapidly anesthesia is produced the better. A competent anesthetizer can do it safely in eight minutes. Lower the inhaler gradually on to the face, thus avoiding shock to the mucous membrane. Do not test reflexes by jabbing finger into the eye; the respiration will, if watched, give sufficient information. After a short time the respiration will apparently stop, but if the pulse continues good, this ought not to alarm. The administration may be continued quietly and all will be well.

84.—This article appeared in THE JOURNAL of July 6, p. 1

95. **Hemolymph Glands.**—The anatomy and histology of these glands is described by Warthin, who recognizes two types which he classes as the splenolymph glands and the marrowlymph glands, though all sorts of transition forms are found between the two. He notices the pathologic conditions which may affect these, such as pyemia, anemia in the various forms, etc. Under normal conditions they are most probably concerned in hemolysis and leucocyte formation and play but little part, if any, in formation of red blood cells. Study of these glands he thinks points to a new and important line of

investigation as regards the solution of problems relative to blood formation, and pathologic conditions of the blood and blood-forming organs.

96. **Tumor Transplantation.**—Loeb details experiments which he has performed in an attempt to transplant cystic sarcoma from the thyroid of a white rat into some 150 other animals and describes at length the changes observed. All the successful cases were in rats; the experiments on guinea-pigs failed. The probability is that in every case tumor cells were transplanted and started a new growth. The possibility, however, of transplantation of micro-organisms as the cause of tumor growth can not, he thinks, be overlooked.

99. **Pest Bacillus.**—From experiments in the Hoagland Laboratory, Wilson concludes that probably the most important points in suspected cases of pest bacillus are the stalactite test, its behavior on salt agar, and the vaccination of rats and guinea-pigs with suspected material. Though there is no positive characteristic by which the bacilli of the pest can be hurriedly identified, one can, by these means, be reasonably certain of its identity.

101. **Trichinosis.**—According to Williams' investigations, it seems probable that many cases of old trichinosis escape detection at autopsies. In 27 cases out of 505 unselected autopsies in the adult human subject, trichinosis was present, all having died of other disease than trichinosis. In some of the cases the infection was extensive, in others very slight. The birth-places of the subjects included almost all the important countries of North America and Europe. A very large percentage of the cases occurred in subjects that had been insane.

104. **Gas Cysts.**—Howard believes that there should be more frequent and careful examination of the brain at autopsies; especially in cases of general gaseous emphysema it would probably show that gas cysts are more common than generally supposed.

105. **Proteolytic Enzymes on Bacterial Toxins.**—Baldwin and Levene have experimented on cases of proteolytic enzymes and neutralizing bacterial toxins, it being well known that many bacterial toxins ingested by the mouth lose their toxicity. They find that the diphtheria and tetanus toxins are both digested and not simply neutralized by the three proteolytic enzymes. In regard to tuberculin it may be stated in a general way that trypsin and pepsin digestion weaken its specific activity. Trypsin on prolonged digestion is able to destroy all the activity of tuberculin, while this could not be achieved by pepsin. He therefore thinks that tuberculin is a specific substance of the nature of a nucleo-proteid, the latter being the reason for its being more easily destroyed by trypsin than by pepsin.

110. **Bacteriolysis and Typhoid Immunity.**—While he does not claim his studies are complete, Richardson thinks the following conclusions may be made or suggested: "1. In typhoid fever Nature produces a cure through bactericidal agents acting upon the specific bacilli. These agents are produced by body cells, especially those of the lymphatic apparatus, and are found in varying amounts in the blood. 2. These protective agents are at least two in number, a specific immune element and a non-specific normal element or ferment. 3. It is the function of the immune element to bind the complement or ferment to the bacterial cell, which is then destroyed. 4. In the earlier and middle stages of the disease the immune body may apparently be present in large amount, and yet be of little value because of the absence of the complement. 5. In the stage of convalescence or falling temperature the normal element returns apparently to the blood, and a corresponding destruction of bacilli takes place. Further, inasmuch as this marked destruction of bacilli must set free an excess of typhoid toxin contained in the bacterial cells, we have in this fact a possible explanation of the marked remissions of temperature seen clinically in the fourth week of the disease. 6. Inasmuch as the addition of normal serum to the inactive serum of the sick typhoid patient will, in most instances, make that serum more powerful, in fact, make it very similar to the serum found in the fourth week, we should be justified, theoretically, in treating such patients with normal serum. 7. It will probably be found, however, that in certain cases the blood of the patient will lack both immune and normal elements, both of which will have to be supplied. Just what elements will be necessary can be determined probably by submitting the patient's blood to tests similar to those just described. 8. The blood of a normal individual may, under conditions described above, have very marked destructive power upon typhoid bacilli. This power is due, undoubtedly, to substances very similar to those found in typhoid serum. Their relation to the subject of natural immunity is, of course, of the greatest importance, and needs much further study. 9. The principles set forth above may apply to infection other than typhoid. This question should be investigated."

111. **Bacillus Diphtheria.**—The morphologic varieties of bacillus diphtheriæ have been studied by Gorham, who finds that his results agree with those of Westbrook that "(*a*) Granular types are usually the most predominant forms at the outset of the disease. (*b*) The granular types usually give place wholly or in part to barred and solid types shortly before the disappearance of diphtheria-like organisms. (*c*) Solid types may sometimes be replaced by granular types when convalescence is established, just before the throat is cleared of diphtheria-like bacilli." He also adds the following: "1. That diphtheria-like bacilli are more frequent in the nose than in the throat. 2. That there are diphtheria-like bacilli in the noses and throats of a large percentage of apparently healthy persons. 3. That by a careful study and classification of the various forms of bacillus diphtheriæ, many morphologic varieties may be recognized. 4. That the change from the granular or barred type to the solid staining types seems to take place under the influence of the body fluids of a person immune or becoming so. 5. That the virulence of the bacillus diphtheriæ seems to be correlated with its microscopic form. 6. That the so-called xerosis, pseudo-diphtheria, or Hoffman's bacillus are morphological varieties of the bacillus diphtheriæ, sometimes capable of producing clinical diphtheria, but usually non-pathogenic for guinea-pigs. 7. That we do not know whether the solid staining types regain their virulence when once they have lost it, though this seems probable. 8. That Neisser's stain is of no value in differentiating the barred or solid types of bacillus diphtheriæ.

114. **Malta Fever.**—Curry reports four cases of Malta fever occurring in soldiers or sailors returning from tropical stations and calls attention to the value of the serum test in this condition. He concludes that Malta fever is a very widespread disease in tropical and subtropical communities. He suggests that the sedimentation test with micrococcus melitensis be added to the list of common routine blood examinations, especially in cases of persistent recurring rheumatism. It is possible that many of the fevers occurring in the South that are not typical malarial or typhoid, may be Malta fever.

121.—See abstract in THE JOURNAL of July 13, p. 135.

125. **Tubal and Ovarian Disease.**—Rothrock has been led from his own experience to believe that the radical operative treatment for removal of affected tubes is in most instances unnecessary if the infection is observed early and properly treated. A large number of the patients suffering from infection in these organs are highly neurotic and the reflex pain and hyperasthesia are all out of proportion to the local lesion, the removal of which does not cure the patient. He has, therefore, for some years followed the treatment published by him in the *Northwestern Lancet*, in January, 1900, consisting essentially in local treatment to the uterine cavity and daily observations of the same after-disinfection with corrosive sublimate, 1 to 5000 or of potassium permanganate 1 to 1000, following which an application of ichthyol, 50 per cent. in glycerin, formalin 25 per cent., of Grammatikati's mixture (alumnol gm. 2.5, tinc. iodin 25 c.c., alcohol 90 per cent. 25 c.c.). In case the infection is confined to the cervix that portion of the cavity alone receives attention. Dilatation of the os is done, if neces-

sary, by sea-tangle tents. It is important that it should be patulous to secure drainage. When the tubes are involved the treatment is modified somewhat. The patient in the acute stage is treated with rest in bed and cold applications. Later local treatment directed to the tubes as well as the uterine cavity is advised.

126. **Cholecysto-Colostomy.**—The question implied in the title of this article is answered by Shimonek as follows: 1. That in all cases of malignant obstruction of the bile-ducts, the safest, easiest and quickest operation is advisable. The diversion of the bile into the colon alone can not cause enough physiologic distress in the time such a patient will live to be at all objectionable and its beneficial effects in relieving the jaundice and its toxic effects will materially lighten the sufferings of the individual. 2. He would advise anastomosis in all cases where the gall-bladder or duodenum or both are so adherent that approximation would be difficult, requiring extensive dissection often involving profuse hemorrhage. 3. He would make the union with the smallest button and as far away from the flexure of the colon as possible, and to avoid any possible forcing of bile contents into the gall-bladder, thus bringing on a possibly dangerous infection. 4. That the rationality of diverting the bile into the colon is so far sustained in all the operations reported.

130. **Uric Acid Fallacy.**—The theories of uric acid and its pathologic action in the system are reviewed by Billings, who quotes from Croftan as to its non-toxicity and that the alloxuric bases are the real cause of the toxic affections usually attributed to uric acid. Although we find no positive knowledge in regard to this subject, we are better able at present to throw aside a lot of theories and absurdities that have been too much enforced in the past and are still largely advocated by certain authorities.

133. This article has appeared elsewhere. See THE JOURNAL of September 14, title 58, p. 717.

140. **Congenital Dislocation of the Hip.**—The opinions of various authorities are first noticed by Bradford who finds from experience that a small number of cases of unilateral congenital dislocation of the hip may be permanently cured by the bloodless method with the exercise of ordinary skill, but that not more than one-half can be cured by even exceptional skill; that the percentage of skill is less in bilateral cases, but that some improvement in the gait can be expected in all. He also shows that by operative reduction with incision three-fourths of the unilateral cases can be cured between the ages of 3 and 8 years, and one-half of the bilateral ones, if treated with best skill. That in children of these ages stiffening is not to be expected unless suppuration follows; this complication can be avoided with care. The question whether the acetabulum should be deepened in order to prevent reluxation is noticed and in certain cases he has employed this method.

163. **Gallstones.**—Vaughan describes the different types of gallstones and their method of occurrence. He sums up in the following statement: "1. Chlosterin and a compound of bile-pigment and lime, generally designated as bilirubin chalk, either singly or together, make up the essential part of gallstones. 2. The cholesterin, which forms gallstones, is not that brought to the gall-bladder from the liver as a constituent of the bile, but has its origin in the mucous membrane of the bladder. 3. While both bilirubin and salts of lime are normal constituents of the bile, the chemical compound formed by the union of these substances and which enters so largely into the composition of gallstones, is not formed by the condensation of bile, but is formed, so far as we now know, only as the result of bacterial infection of the bile. 4. Gallstones are formed in the bladder or gall-ducts only when the mucous membrane of these organs is infected. 5. The infecting bacterium which leads to the formation of gallstones is in the majority of instances the bacterium coli commune, but it is probable that other micro-organisms may have a like effect."

164. **Gallstones.**—The diagnosis of gallstones and their clinical history is discussed by **Metcalf** who concludes that, though many signs and symptoms are usually present, the only positive sign is the discovery of the stone in the feces. When symptoms of disease affecting the bile passages are persistent, exploratory incision should be made to complete the diagnosis and at the same time to give relief.

172.—This article has appeared elsewhere. See THE JOURNAL of September 14, ¶89, p. 723.

177-178. **Mosquitoes in Their Relation to Disease.**—Beyer's article is a very thorough description of the characteristics of the pathogenic mosquitoes, with illustrations. Veazie describes the species found near New Orleans. He makes the interesting practical note that the mosquitoes are very fond of sucking amongst soiled clothing, the culex especially, and he thinks this fact may account for the dissemination of disease by fomites. He has also seen them imbibing the vomited and excreted matter from patients. In this case the male will suck up the blood as well as the female and he suggests that Drs. Reed, Carroll and Agramonte will be interested in this observation.

FOREIGN.

British Medical Journal, September 7.

What Is Intussusception? How Should It Be Dealt With? EDMUND OWEN.—Owen is of the opinion that intussusception is surgical from the very beginning and the medical treatment can afford no trustworthy means of managing the cases, that prompt abdominal section is the only scientific and practical way of giving relief. In conclusion, he maintains, "that whether a strangulation of the intestine is by an en sheathing piece of bowel or by the neck of a hernial sac, the effects are very much the same, and that delay in affording relief is likely to be fatal. Lastly, that the best way of affording prompt and certain relief is by the surgeon cutting down to the seat of strangulation and putting it right in a proper surgical way."

Discussion on the Treatment of Intussusception in Children. BERNARD PITTS.—This author thinks inflation may be employed sometimes when the intussusception is along the transverse or descending colon, as a useful preliminary operation and will often limit the field of operation and enable the incision to be made directly through the swelling. Even if complete reduction should apparently take place it is generally best to make sure of this by a small incision, otherwise one must remain in doubt, as it is very probable that reduction is not quite complete and that it will recur or else give rise later to a condition of chronic stenosis. He remarks that it is essential in young children that the shock should be minimized by placing the child on a hot-water cushion and by having the extremities covered with cotton wool and bandage. The operation must be a rapid one. When the abdomen is much distended and the position of the tumor has not manifested itself it is best to make an incision in the middle line and take special precautions against prolapse of the small bowel. A distended coil may with advantage be withdrawn and air and intestinal contents allowed to escape through a small incision, this being afterwards closed; examination is thus rendered comparatively easy. This is much better than allowing the coils of distended and unmanageable gut to remain outside the abdomen during exploration. He dwells especially also on the importance of suturing the exploratory wound and the use of the buried suture and leaving superficial sutures as long as possible. While deep buried sutures add a little to the length of operation, they are better in young children, and he adds the following modifications of the conclusions offered by him in 1897: "1. Try inflation only when the case is seen within a few hours of onset, and is not of a very acute character. In the great majority of hospital cases it is better to open the abdomen at once. 2. Inflation may be tried in certain other cases for the purpose of reducing the main portion of the intussusception and enabling the incision to be made directly over the cecum. 3. When reduction is found impossible in chronic cases a resection may be generally done through an incision in the ensheathing bowel. 4. In acute cases, and especially if gangrene is present or the condition of the bowel

requires its removal, a wide resection should be undertaken as rapidly as possible, and the ends brought outside the abdomen; continuity should be restored at a subsequent operation. 5. In exceptional cases of enteric intussusception resection and immediate restoration of continuity gives the only chance."

Essential or Toxemic Dropsy; Dropsy Without Albuminuria. W. P. HERRINGHAM.—The cases of general anasarca occasionally met with, chiefly in children, but sometimes also in adults, which resemble Bright's disease but without albumin in the urine, are discussed by Herringham, who describes the condition, lack of constant lesions, apparently normal kidneys, etc., and asks whether it is a real nephritis. He says that both in the symptoms and in the etiology from exposure to cold and after scarlatina it closely resembles nephritis. There are also many cases of scarlatinal nephritis without albumin in which the kidneys show atypical lesions. There are, it is true, some cases of edema from anemia and occasionally cases of pernicious anemia will terminate with great general dropsy. Bristowe, Ashby and Wright apparently take the view that dropsy is dependent upon anemia, but in some cases anemia is not present, and in others it is by no means of that degree that should naturally account for the severe anasarca. It is not to be supposed that a grown-up man in full work and after getting wet through suddenly falls a prey to anemia such as to produce anasarca as sometimes happens in the adult cases of this condition. He holds rather to the view that the condition here is of microbic infection which may in some cases produce anasarca and nephritis and in other cases cause a form without disease of the kidneys. It is the toxic condition of the blood which is the common cause of both these conditions and nephritis.

Results of Tendon Grafting in Infantile and Spastic Paralysis. A. H. TUBBY.—This author reports his experience with 11 cases of tendon grafting for paralytic talipes. In 6 there were good results and in 5 fair, meaning by the latter a partial improvement. In no case has failure resulted. Of the 4 operations in the forearm for spastic trouble, they had good results in 3 and partial in 1, and he says: "Tendon grafting is an operation with a future before it, and it has great possibilities, but it must not be employed indiscriminately. It is useless in cases of flail-like joints, where all the muscles are badly affected, and it should not be employed in slight cases of paralytic valgus or varus or in slight equinus, the last being easily remedied by section of the tendo Achillis. It is not an operation for the display of anatomical knowledge nor of mechanical skill in operating, but one requiring the nicest care in the selection of cases and of the muscles to be employed, and careful watching of the results of the operation for several years afterwards."

Discussion on the Early Diagnosis of the Acute Specific Fevers. F. FOORD CAIGER.—The symptoms and differential diagnosis of measles, scarlatina and roseola are noted by Caiger, who points out the conditions that may resemble these and the difficulties attending the bacteriologic test of diphtheria. He believes the Neisser stain is the most trustworthy criterion for the true bacilli diphtheriæ that we have, excepting, of course, the inoculation test. The question of the "fourth disease" that has been suggested as existing by Dr. Clement Dukes, he holds as still *sub judice*, but says it offers a legitimate field for discussion and investigation.

The Value of Widal's Serum Reaction in the Diagnosis of Typhoid Fever in Children. J. H. THURSFIELD.—The author has employed the Widal reaction in 100 different cases, in 42 of which it was positive; the remainder were negative, including examples of almost every febrile disease to which children are liable. In the 42 cases with the positive reaction, several were those in which the diagnosis would have been difficult without the test at the stage when it was made. Only one of these 42 gave a negative result later than the first week of illness. Allowing for the smallness of the figures he would claim that in children this positive Widal reaction is trustworthy evidence of the presence of typhoid and that negative reaction later than the tenth day of illness is strong but not absolute proof of its absence, while repeated negative reactions are trustworthy evidence that the case is not typhoid at all. The test is just as reliable in children as in adults.

Radical Cure of Inguinal Hernia in Children. HAROLD J. STILES.—The operation preferred by Stiles in case of inguinal hernia in children is practically the Mitchell Banks operation. While he has no doubt of the value of Bassini's operation in adults, in children he advises as little interference as possible with the anterior wall of the canal. He speaks with commendation of the advantages of the Cleveland needle over the MacEwan needle in passing the sutures.

Two Cases of Chronic Hydrocephalus in Infants Treated by Tapping and by Introduction of Aseptic Air in the Place of the Fluid. WM. EWART AND W. LEE DICKINSON.—The provisional conclusions which the authors consider warranted from their observations here reported are: "1. With due precautions the fluid of chronic hydrocephalus may be completely evacuated from the yet unclosed skull of infants, and aseptic air may be allowed to take its place. This operation may be repeated without detriment and with scarcely more risk than belongs to the usual method of paracentesis. 2. In favorable cases of moderate effusion a single operation may suffice. Continued oozing from the puncture for a few days after the removal of the tubes is not unfavorable. 3. In cases of considerable effusion an obvious indication is to relieve the brain from the weight and from the pressure of the fluid. The evacuation is facilitated by the introduction of aseptic air. By a timely repetition of the operation a hydrocephalic infant might be enabled to carry the weight of the head, and, if the treatment were begun sufficiently early, permanent damage to the brain tissue might be averted and a normal development might perhaps ensue. 4. In large heads, whilst hydropneumocephalus persists a considerable splashing sound is readily obtained. There is obvious risk in eliciting this sound by forcible succussion and for the same reason any abrupt movement of the head should be avoided."

Diagnosis of Suppurative Pericarditis in Children. FREDERICK E. BATTEN.—While the diagnosis of suppurative pericarditis in children is a matter of considerable difficulty and the cases are commonly mistaken for tuberculosis and empyema, the special points are given by Batten as follows: "One may say that a fairly definite date can be fixed for the onset of the disease, the condition of the child generally bears a striking resemblance to that of a child suffering from empyema; the child is pale but not sallow, the limbs are wasted and the muscles flabby, and the skin is generally moist, and has not the dry and scaly conditions so often seen in tuberculosis. The children are extremely liable to severe and sudden attacks of syncope. The temperature has a generally irregular character, with rather sudden rises and sharp falls. The rapidity of the heart's beat is always great, and seemingly out of all proportion to the general condition of the child, who does not seem especially distressed. On physical examination of the chest the signs suggest either an effusion into the pleural cavity or tuberculous consolidation of the lung, but, as a rule, no increase of the area of cardiac dulness can be mapped out, although epigastric pulsation may be present. It might be suggested that the diagnosis might be assisted by the introduction of an exploring needle, but given symptoms or signs that would suggest pericardial effusion it would be much safer to make an incision in an intercostal interspace or resect a rib if necessary rather than pass an exploring needle toward the heart." Until diagnosis becomes more accurate, rational treatment, viz., the opening of the pericardium and draining the cavity is impossible. Even where it is possible the percentage of recoveries would be slight.

Observations on Suppurative Pericarditis in Children. GEORGE F. STILL.—This author, discussing the same subject, believes that we can do something in the way of prophylaxis and in the majority of cases we have a pneumococcal exudation in the pleural cavity producing secondary infection, and early diagnosis with speedy evacuation of this infective matter may reduce the risk of pericardial infection.

The Lancet, August 31.

Recent Inquiries and Researches into the Poisonous Properties of Naphthalene and Aromatic Compounds. R. P. WHITE AND JOHN HAY.—The poisonous properties of naphthalene and benzene compounds have been investigated by Hay and White, who find that probably the naphthalene group is much less dangerous than the benzene and toluene groups. Of the naphthalene compounds it is probable that the dinitro-benzene naphthalene is more poisonous than the mono-nitro preparation. The mono-nitro-benzene does not seem poisonous to cats, which appear to thrive upon it, but dinitro-benzene is exceedingly poisonous to both man and animals. The smallest lethal dose of dinitro-benzene for a cat of six pounds is 0.08 gram, given by the mouth in one dose; probably less than 1.82 gram would be fatal to man. Mono-nitro-toluene is quite inert when administered to cats, but nitro-toluene is too dangerous to work with, while the trinitro compound of toluene appears less dangerous than its dinitro-benzene equivalent. All these facts imply the administration either by the mouth or hypodermically, but the question has arisen whether dinitro-benzene or some of these other compounds can be absorbed through the skin in dangerous quantities. In manufactories where men work in these materials it has been suspected that they are dangerous by inhalation, and a German manufacturer who supplied fresh air entirely to his workmen so that they inhaled no vapor from the substances had, nevertheless, a certain amount of sickness amongst the employes and the only way in which the poison could get to the blood was through the skin. Hay has experimented on cats, shaving off the fur and insuring that there were no abrasions or cuts and applying dinitro-benzene ointment, carefully covering it with collodion. In three experiments the cats died within two or three days, or within a week. He also applied a small portion of a 25 per cent. dinitro-benzene ointment on his own skin and it produced decidedly uncomfortable symptoms lasting for over 48 hours, headache, tremor, high pulse, lividity of lips and nails, a feeling of fulness in the head, metallic taste, etc. The experiments prove conclusively that with dinitro-benzene within close contact with the skin it becomes absorbed. He points out the dangers of handling, grinding, heating and otherwise manipulating this material. Pure dinitro-benzene consists of colorless crystals, but the commercial substance is often dark-green in color from impurities. In the working of these substances the workmen should avoid anything in the way of greasy appliances, unnecessary exposure of the skin, the hair of the head should be cut close and the face have as little hair as possible and caps close fitting, covering as much surface as possible. There is also a suggestion that the numerous oxidizing ingredients associated with dinitro-benzene in the manufacture of high explosives may also have some influence on absorption.

On the Prophylaxis of Carcinoma. C. B. KEETLEY.—Almost all primary carcinomas are situated in the breast, alimentary canal, skin, uterus or in the canals, ducts and glands subsidiary to these parts or directly opening into them. The medium which can carry cancer is, therefore, one which is liable to reach such situations, and Keetley has sought for this in water, which he thinks, however, is not likely to be a carrier. He considers milk much more dangerous in this respect, especially in producing cancer in the alimentary tract. He suggests also that flannel underwear may have something to do with the occurrence of mammary cancer, as it is handled more gently in the laundry than other fabrics and the germs are less likely to be destroyed. He asks for information as regards the possibility of guilt or innocence of butter, milk and cheese in the etiology of carcinoma and suggests the following rules for the prophylaxis of cancer: "1. Chronic inflammation, suppurations and especially ulcerations, should not be neglected or allowed to drift. Still better, commencing troubles of the kind should be treated promptly and not allowed to become chronic. With regard to ulcerations, especially of the alimentary canal, and with regard, also, to suppurations, especially of the breast, it is to be remembered that the cicatrices left by their cure are liable to become the seat of malignant infection. It is, therefore, doubly desirable to cure such ulcerations and suppurations in their earliest stage, so that little or no cicatricial tissue may remain, and in cases where the arguments for and against the removal, as opposed to the simple healing of an ulcer, are otherwise evenly balanced, the indication to remove a place especially liable to cancer should prompt one to excision. 2. Well-known sources of irritation of mucous membranes and of skin should be avoided, e. g., smoking when any trace of soreness is discovered in the mouth, on the tongue, or on the lips, and the habitual use of strong condiments and spices. Workers in special trades, such as chimney-sweeping, should lose no time in having the smallest cutaneous rashes or other trouble promptly cured. Among milk-products cheese is itself an irritant to mucous membranes. Some syphilities with a tendency to ulceration of the tongue, notice that a fresh attack frequently follows eating cheese. 3. A woman should allow nothing to come in contact with her nipples except smooth clean linen, cotton or silk, and the soap and warm water with which she washes herself. After being washed the nipples should be gently and thoroughly dried. She should not touch them with her hands or fingers at all. During lactation the nipple should be cleansed and gently dried after each act of sucking and then protected with a dry and clean covering. The nipple should be not merely withdrawn from the infant's mouth and pushed back under the mother's clothes. If wool be worn it should be sterilized by heat. 4. Whoever takes as food uncooked and unsterilized milk, butter and cheese should recognize that he does so at the risk of introducing into his system the germs of disease, and that among these disease essences, so to call them, may be that of carcinoma."

On the Behavior of Oxy-Hemoglobin, Carbonic-Oxid Hemoglobin, Methemoglobin, and Certain of Their Derivatives, in the Magnetic Field. ARTHUR GAMGREE.—The diamagnetism of blood was first observed by Faraday in 1845, and has since been remarked upon by other investigators. Gamgree has investigated the reaction to magnetism of oxy-hemoglobin and comes to the following conclusions from his experiments: "1. The blood-coloring matter, oxy-hemoglobin, as well as carbonic-oxid hemoglobin and methemoglobin, are decidedly diamagnetic bodies. 2. The iron-containing derivatives hematin and acethemin are powerfully magnetic bodies. The differences in magnetic behavior between the blood-coloring matter and acethemin and hematin point to the profound transformation which occurs in the hemoglobin molecule when it is decomposed in the presence of oxygen. 3. The preliminary study of the electrolysis of oxy-hemoglobin and CO-hemoglobin renders it probable that in the blood-coloring matter the iron-containing group, on which its physiologic properties depend, is (or is contained in) an electro-negative radical; according to analogy the iron in such a compound would possess diamagnetic and not magnetic properties."

Indian Medical Gazette, August.

A Suggestion for the Surgical Treatment of Chyluria and Other Forms of Filarial Lymphatic Varix. PATRICK MANSON.—The following suggestion, which was offered by Manson in a case of persistent chyluria, is here given by him to the public. The disease was evidently slowly killing the patient and had resisted all treatment. As not infrequently happens the patient had varicose groin glands. It occurred to him that tension in the lymphatic varix, the rupture of which into the urinary tract was the source of the chyluria, might be relieved and the rupture healed, could the varix by surgical means be induced to empty into a vein. He therefore suggested to the patient to have one of the dilated lymphatics dissected out under asepsis, cut across, and telescoped into some neighboring and convenient vein which would have to be slit up for a short distance for this purpose. In this way he thought that by short circuiting the path of the regurgitating chyle the chyluria might be cured and the patient's life saved. He offers this suggestion to Indian surgeons who have better opportunities for following it up than he has in Great Britain.

Relation of the Entero-Coccus to the Etiology of Tropical Dysentery. E. D. W. GREIG.—The entero-coccus de-

scribed by Thiercelin in 1899 as found in normal stools in which it appears to lead a saprophytic existence, is here described. Two observers have recently been working on the relation of this organism to the etiology of non-tropical dysentery. Simonin found its presence in a large number of cases occurring in Paris, and Lewkowiez describes the microbe and considers it possibly the organism of some cases of non-tropical, and even of tropical dysentery. He investigated several cases and in two of them he got the entero-coccus in the stools in great abundance, and in the third, which was complicated with meningitis, he obtained the organism in pure culture by lumbar puncture. He considers it related to the pneumococcus and found it in the stools partly enclosed by phagocytes in the form of diplococci or short chains of four to eight. In the latter the cocci are arranged in pairs and the opposing surfaces are broad and close to one another. On agar they grow as single cocci, sometimes as pairs. A certain amount of point at the free ends resembling the pneumococci is sometimes seen; most possess a broad delicate capsule. In broth they grow out in long chains; the capsule is well developed, and encloses single cocci, pairs of cocci, or certain sections of the chains. In the animal organism the entero-coccus occurs as a diplococcus with well-marked capsule, and sometimes it takes the form of streptococcus. It stains by Gram's method. It differs from the pneumococcus in its more rounded form and breadth, and forms longer chains in the broth. On artificial media it resembles the pneumococcus, the colonies are longer and more slimy, very transparent and tend to run together. In milk, after a time, coagulation takes place. It is pathogenic to mice and rabbits, producing local inflammatory lesions with slight toxic or septic action, agreeing well with the clinical picture of dysentery. In Greig's preliminary observations, he reports finding in tropical cases organisms that seem to him identical with those of Lewkowiez, associated with other bacilli, however, and he considers the constant occurrence of this organism in acute dysentery and in the production of phagocytes, lends support to the proposition that it is causally connected with the acute dysentery of the tropics. In simple diarrhea, personal examinations with a view to determining the presence of this organism were negative. He thinks it quite likely that it may exist as a saprophyte under normal conditions, but from any cause that lowers the local resistance or increases its virulence, a pathologic condition of dysentery is produced.

Presse Medicale (Paris), August 24 and 31.

Surgical Treatment of Hydatid Cysts in the Kidney. E. ALBARRAN.—Of the seven patients treated by trans-peritoneal nephrectomy which Albarran has collected only two survived. On the other hand, all the three patients treated by nephrectomy by the lumbar route, have recovered. Consequently, nephrectomy by the latter route does not deserve the discredit into which nephrectomy in general has fallen. Albarran describes his personal case in detail, and summarizes the indications as follows: If a laparotomy has been done on a dubious diagnosis, conclude with nephrostomy unless under exceptional circumstances. Houzel's fourteen and Albarran's twenty-three patients all recovered. If the intervention is by the lumbar route, with or without an established diagnosis, open the cyst, evacuate, and determine the possibility of exterminating the germinative membrane in order to proceed to capitonnage. If this is impossible, examine the kidney, and if it is still useful and it is possible to extirpate the cyst in toto, proceed to a resection of the kidney. If the organ is still useful and the above operations are impossible, continue with nephrostomy after partial resection of the cyst. But if the kidney is so damaged that it is totally incapable of future functional activity, try to detach it and, if possible, conclude with nephrectomy. If the adhesions are too solid and numerous for this without too much destruction of tissue, and especially if the patient is not in a condition to bear such an extensive operative traumatism, restrict the intervention to nephrostomy.

Cacodylic Medication. A. MARTINET.—Both experimental and clinical research and experience confirm the general stimulation of the organism and of its functions that follows administration of arsenic. Experience has also demonstrated the correctness of Gautier's assertions in respect to the remarkable non-toxicity of one of its derivatives, cacodylic acid. As long ago as 1841, Bunsen announced that a large amount of this acid could be injected into a rabbit's ear without intoxication, and he consequently classed it as a non-poisonous substance. Only two cases of disturbance following its administration have been reported, one was in a patient with cancer of the liver, and consequently, hepatic insufficiency for the present must be accepted as a contra-indication. The other was a tuberculous patient who took 20 cg. of sodium cacodylate by the mouth during the day in three pills. Symptoms of arsenical poisoning were evident after the eleventh pill. Normal conditions were restored after suspension for three days. (*Brit. Med. Jour.*, 1900, ii, p. 1823.) The chemical and biologic properties of arsenic are so altered in cacodylic acid that it is impossible to detect it by the usual reagents for arsenic. Impurities must be guarded against. The absence of poisonous arsenites and arseniates in sodium cacodylate is indicated by the lack of precipitation when an excess of lime water mixed with baryta water is added. The most important test for the presence of arsenites and arseniates is the addition of hydrochloric acid to an aqueous solution. There should be no yellow precipitate from the formation of arsenic sulphide by the action of hydrosulphuric acid. These impurities may have been the cause of the intoxication mentioned above. It is prudent to commence with small doses—2.5 to 5 cg. of sodium cacodylate—and gradually increase to 10 cg., which is a good average dose. There does not seem to be any particular advantage from using larger doses. The subcutaneous method is preferable. Administration by the mouth or rectum should be reserved for cases in which the former is impossible owing to the distance from the physician, or the timidity of the patient. Gautier absolutely rejects any but the subcutaneous route, but this is a little too sweeping. Comparative case-reports show that the best results have been attained by suspending the medication for a week between each series of eight to twelve injections, without waiting for symptoms of intolerance. A good prescription for subcutaneous injection is Gautier's: 6.4 gm. of pure sodium cacodylate, and ten drops of a 10 per cent. alcoholic solution of carbolic acid, in 100 c.c. of distilled water. When necessary to administer it by the mouth, Martinet prescribes 50 cg. of sodium cacodylate in 100 gm. distilled water. A teaspoonful contains 2.5 cg. of sodium cacodylate. One or two teaspoonfuls should be taken in the middle of the two principal meals in a glass of some beverage. It can be made into a pill by the following formula: sodium cacodylate 2 cg.; benzoin and licorice powder each 1 cg., and one drop of 90 per cent. alcohol. For rectal injection, one or two teaspoonfuls of an aqueous .5 to 1 per cent. solution of the sodium cacodylate. This is equivalent to 2.5 to 5 cg. of the active substance. One or two tablespoonfuls of boiled water are added, and, if needed, two or three drops of laudanum. The onion odor of the breath is particularly frequent in children, and often in those who are deriving great benefit from the medication. Gautier considers it an indication of the formation of cacodyl oxid and other toxic substances, but clinical experience does not sustain this view. The onion odor was not mentioned in the case of intoxication mentioned above. (See THE JOURNAL of August 24, p. 539.) Rocaz lauds this cacodylic medication especially for children. He prescribes 1 cg. a day at 3 years of age, 2 at 6, 3 at 9; 4 at 12, etc. Martinet has found doses of 3 to 10 cg. very beneficial for children between 6 and 12, with no indications of intolerance, except the onion odor. Josias is accustomed to give the children in his service as much as 10 to 15 cg. a day.

Berliner Klin. Wochenschrift, August 19.

Association of Tetany and Epilepsy. A. WESTPHAL.—A woman of 42 with chronic epileptic idiocy exhibited a permanent tonic contracture of the muscles. Another patient exhibited symptoms of tetany the second day after a partial strumectomy. It was followed by cachexia strumipriva and double cataract. Six months after the operation, epileptic seizures appeared, preceded and outlasted by typical tetanic

convulsions. The seizure was a mixture of tetany and epilepsy. There were no further attacks after six days of thyroiodin treatment until dismissal, six months later. On suspension of the thyroiodin, however, the seizures recurred, requiring the continuance of the treatment, which had cured the apathy and other psychic disturbances at the same time as the other troubles. Both the tetany and the cataract formation are probably nutritional disorders, due to the action of toxins, similar to the trophic disturbances observed in certain nervous affections. The toxins probably originate in the products of morbid metabolism.

Centralblatt f. Bakteriologie (Jena), July 12 and 18.

The Autosterilization of the Intestines. J. H. F. KOHLBRUGGE.—Many scientists have noticed that in animals the small intestine is sterile, but Kohlbrugge is the first to explain this phenomenon as due to a process of autosterilization. The intestinal secretions are bactericidal, he states, and all bacteria coming in contact with the secreting wall are destroyed under normal conditions. The benefits derived from saline purgatives, etc., are probably due to the augmented secretion which they induce. The bactericidal properties of the intestinal juices are, of course, derived from the blood. Experiments on isolated loops of the intestines showed that the bacteria increased enormously in numbers if the circulation was arrested, while they were rapidly destroyed if the circulation was maintained. Readers of THE JOURNAL are familiar with Kohlbrugge's assertions that every intestine has its individual colon bacillus, and that the appendix may be the nesting-ground for these specific bacilli. The colon bacilli taken in the food are probably killed in the stomach, the same as the home-grown colon bacilli, if they happen to find their way into the stomach. Rabbits eat their feces and they become sterilized in the stomach. With sterile food and sterilization of the mouth, all the wild, imported bacteria may be killed, but one's own colon bacilli are not influenced, and sterile feces should not be expected. In health, the intestinal putrefactions depend exclusively upon one's own bacilli of putrefaction in the large intestine. The bactericidal power of any substance ingested should not be calculated on the basis of the bacteria in the stools, as the numbers vary widely even in health, and a few millions more or less are of little consequence. The ordinary microbes in the feces are harmless and the clinical importance of putrefaction in the intestines has been exaggerated. It is also to be borne in mind that intestinal disinfectants do not affect the products of the metabolism of the bacteria. Purgatives and a milk diet are the only sure means of diminishing putrefactive processes. When the intestinal wall is an actively secreting membrane, it is impermeable for bacteria, but all processes which interfere with its secreting power are liable to render it permeable for micro-organisms, both wild and home-grown. Bacteria pass more readily from without into the intestine than from within outward. Injected under the skin or into the blood, they may soon be detected in the intestines. The walls of the latter seem to be powerless against them, possibly because the vital functions in general have already become depressed by infection from them. The chemical, fermenting action of the home-grown bacilli in the intestines might possibly be dispensed with, but they evidently are useful in stimulating peristalsis and in checking the development of other more harmful bacteria by their acid reaction. Their gaseous products may also influence the statics of the intestines and, indirectly, the movements of the diaphragm. The antagonism between the home-grown and the wild bacteria is probably their most important function. The small intestine has no home-grown bacteria or, if any, they are of the colon bacillus group. The cecum is the shelter of the typical, individual, colon bacillus and the rectum, of the putrefaction bacteria, like the putrificus, proteus and subtilis and also the acidophilus group, which are probably akin to diphtheria bacilli. The individual colon bacilli are only to be found elsewhere in the lower portion of the ileum. Those found in the jejunum are a branch variety and those in the colon are modified by contact with the putrefaction germs. The pancreatic juice and the bile have little if any bactericidal power. The autosterilization of the intestines occurs only *in vivo* and can not be studied on the isolated secretions. This communication is based on extensive personal research and study of the works of others, who have discovered many of the facts but have failed to interpret them from this point of view.

Centralblatt f. Gynekologie (Leipsic), July 27.

Treatment of Chronic Exudates in the Pelvis with Hot Air. O. POLANO.—This rapid and powerful stimulant of resorption has proved extremely effective in Polano's experience applied to the pelvis for the treatment of chronic exudates. In one of his numerous cases the patient was cured of a hard exudate, palpable from the ilium to the umbilicus, which vanished entirely in the course of twenty applications of the hot-air apparatus. He found it particularly valuable in promoting resorption after evacuation of a pus pocket. It always relieved the pain immediately. Advanced pregnancy in one of his patients was not affected by the hot-air treatment which was applied in this case to relieve edema of the labia.

August 10.

The Mercury-Air Colpeurynter and Colpeurynter Massage. L. PINCUS.—The long-sought means of effective ambulant treatment of various chronic gynecologic affections is obtained by means of the vaginal colpeurynter filled with mercury or air, which Pincus recommends after three years of thorough trial in both dispensary and private practice. It is the perfection of the weighting-down treatment which he has long advocated, as it allows the weighting-down to be done so gradually, and removed in the same way by fractions of a millimeter, while it is simple and inexpensive. In pelvic lesions located near the pelvic floor, this measure is the chief factor in treatment and compression of the abdomen by bandages the adjuvant, but in lesions above, the latter is the main factor and the vaginal weighting-down and massage the adjuvant. The apparatus consists of two balloon-shaped colpeurynters, connected by tubes with a central, graduated, glass ball-shaped vessel. Two other tubes are also attached to the glass vessel, one connecting with an air bulb and the other admitting filtered air. The four tubes—each with its stopcock—form an X with the glass ball in the center. One of the colpeurynters is empty and one is filled with mercury. The empty one is inserted in the vagina, then, by raising the colpeurynter filled with mercury, the latter flows into the graduated glass vessel in the center, from which it is gradually allowed to flow into the colpeurynter in the vagina until it holds 1000 to 1500 gm. of mercury. In cases of parametritic exudates and in all processes with effusions located on or near the floor of the pelvis, chronic in character, this intravaginal treatment with the mercury colpeurynter is a most valuable measure. It must be supplemented by compression of the abdomen. In case of lesions near or above the pelvic inlet, intravaginal massage is the adjuvant to compression of the abdomen. For massage purposes, the vaginal colpeurynter is filled with air instead of mercury; the tube is closed with the stopcock, the rest of the apparatus removed, and the end of the tube is turned up and fastened to the patient's clothing above. She is then dismissed for two or three days. If the pressure is too great the wearer can release a little of the air by turning the stopcock. This treatment has proved exceptionally useful in case of vaginismus, as the empty colpeurynter can be introduced through the smallest aperture, and after it has accomplished the dilation of the vagina, local treatment of the underlying gonorrhea or other cause can be instituted without delay. It has also cured many inflammatory conditions of the pelvic muscles, numerous so-called neuralgic affections of the region, weakness of the muscles entailing chronic constipation, and hemorrhoids. It is a much more effective stimulant of labor pains than the water colpeurynter. Pincus has waited before publishing his experience until thoroughly convinced of the exceptional benefits to be derived from the mercury and the air colpeurynters and recommends them now with confidence. This preliminary communication is soon to be followed by the detailed report of his experiences in the *Sammlung Klinischer Vorträge*.

Berliner Klin. Wochenschrift, August 26.

Hydatid Cyst Simulating Acute Pleuropneumonia. P. K. PEL.—The clinical picture was that of acute pneumonia of the middle lobe of the right lung and extensive pleuritis without effusion, complicated by a pleural effusion on the left side. The only missing symptoms were the pneumonia-sputum and facial herpes. The protracted course was attributed to the general debility from a vagabond life and alcoholism. An operation confirmed by autopsy soon afterward, revealed a hydatid cyst in the upper lobe of the right lung and the remains of a similar cyst in the left, surrounded by inflamed lung tissue. The first cyst was isolated, but the other communicated with a bronchus, and the acute symptoms had probably been caused by infection by this route. The physical signs on the left side were thus explained by the empty cyst and the compressed and inflamed lung tissue; on the right, by the crowding of the lung tissue by the deep-seated cyst.

Treatment of Heart Disease by Compression. M. MENDELSOHN.—The painful sensations in heart disease are frequently located in the thoracic wall rather than in the heart itself. The pressure of an abnormally movable, hypertrophied heart pounding against the wall is almost sure to be painful. Elastic compression of the heart—which Mendelsohn has been advocating for some time, abolishes all these painful sensations while it relieves and favors the functional activity of the organ.

Deutsche Med. Wochenschrift (Leipsic), August 22.

Accidents and Diabetes. F. HIRSCHFELD.—The direct influence of trauma on the origin of diabetes is unmistakable in many instances. They are usually cases of nervous diabetes and a direct action on the nervous system can be assumed, as in the traumatic glycosuria described by Claude Bernard. It is possible, also, that the development of diabetes in case of an existing affection of the pancreas may be traced to the trauma. It may likewise induce an affection of the pancreas, such as cysts or hemorrhage or possibly a chronic inflammation. An already existing diabetes may take an unfavorable turn in consequence of a trauma. Coma is the most important of the aggravations from this source. In severe cases of diabetes a very slight cause may suffice to induce coma—so slight that it is difficult to decide whether it may not have been the natural consequence of the disease. Occasionally the accident may induce coma even in a mild case of diabetes. Death in such a case can be unconditionally ascribed to the accident, as coma very rarely appears in mild cases. Death under these circumstances does not occur for ten days after the accident, while in the severe forms of diabetes it follows in one or two or, at latest, four days afterward. It is probable that an accident may transform a mild and insignificant vascular affection into conditions that favor gangrene in the cases in which it appears consecutive to trauma. Hirschfeld concludes by calling attention to the inadvisability of much muscular exertion in the case of diabetics in general. Their capacity for muscular exertion is much diminished as a rule, and they should select occupations which do not call for severe physical efforts.

Scrofulosis and Tuberculosis. H. NEUMANN.—Investigations of Berlin school children undertaken by Neumann and several specialists, showed that 89 per cent. were scrofulous. He considers that they are all tuberculous and that the tuberculosis is the primary affection, causing the scrofulous manifestations by its toxins.

August 29.

Abscesses in the Rectus Muscles in Typhoid Fever. L. BOLLACK.—In abscess-formation in typhoid fever, the bacilli always seem to have lost their virulence to a great extent. The abscesses usually appear during convalescence and are symmetrical. A degenerative process seems to occur constantly in the rectus muscles, probably a granular or waxy degeneration, which renders the tissues very fragile. During some effort to cough they are liable to rupture, with consequent hemorrhage, and, in rare cases, to suppurate, by the action of the typhoid bacillus alone. Pyogenic properties are probably acquired by the bacilli only as they become attenuated. The discovery of typhoid bacilli in an abscess or empyema is therefore an indication not to be hasty in operating. In a case described, an abscess in the rectus was evacuated and pure cultures of the typhoid bacillus derived. In the course of a week a symmetrical abscess formed which was not interfered with, and it was spontaneously resorbed in the course of a month.

Deutsche Zift. f. Nervenheilkunde, xix, 2 to 4.

Pathologic Changes Induced by Lumbar Puncture. V. P. OSSIPOW.—The withdrawal of the cerebrospinal fluid in dogs by lumbar puncture causes a persistent hyperemia in the vessels of the meninges and even of the brain and cord. Repetition of the puncture leads to the production of numerous punctated hemorrhages. When the urine is aspirated, the hemorrhages are still more pronounced. The nerve cells are likewise affected, not only by lesions of the cells from the hemorrhages, but by the altered relations between the circulation and the nutrition of the cell.

Muenchener Med. Wochenschrift, August 27.

Etiology of Erysipelas. JORDAN.—Acute osteomyelitis is usually the result of staphylococcus infection, but it has been proved that it may be produced by streptococci, pneumococci and typhoid bacilli. In the same way, erysipelas may be the work of the staphylococcus aureus or possibly of the pneumococcus or colon bacillus, but in general, it is the result of infection with the streptococcus. It has been produced on rabbits' ears by all these various micro-organisms. The parallelism with acute osteomyelitis is rendered more striking by the fact that the latter is usually a suppurative, but may be occasionally a serous or hemorrhagic-septic inflammation, while erysipelas is usually a serous inflammation, but may be accompanied by suppuration and even by gangrene. Both affections vary in intensity and either may terminate in pyemia and sepsis induced by the same causal agent.

Neurologisches Centralblatt (Leipsic), August 16.

Regeneration of Spinal Cord. A. FICKLER.—In 1899 Fickler published two cases of compression of the spinal cord from caries of the vertebræ, in which he found a number of delicate, well-constructed nerve fibers emerging above the point where the compression had been located, and returning into the cord below. As no such fibers occur normally at these points, and as one case had showed marked improvement in the symptoms after the affection had persisted a certain length of time, he accepted them as newly-formed fibers, evidences of a regenerative process on the part of the spinal cord. Bielschowsky has recently published a similar discovery in a case of compression of the spinal cord. The fibers emerged from the region of the anterior commissure, in the sheath of the pia just above, and returned into the spinal cord just below the compressed region. He considers them a split-off portion of the pyramidal tract. No improvement had been noticed in the symptoms in the case. He also asserts that the fibers observed by Fickler must have been of the same nature. The latter points out that such fibers have never been discovered except at the compressed point, and he claims Bielschowsky's case as a typical instance of the regeneration of the spinal cord. The circumstances were unusually favorable for such an occurrence, as the compressing exostosis did not seem to have increased in size during the latter portion of the time. The first symptoms had been noted two and one-half years before death. The conditions of cure, he states, are the possibility of the restoration of normal circulation of lymph and of the development of new myelin sheaths around the axis cylinders which have remained uninjured, although their sheaths may have degenerated, and thirdly, the regeneration of nerve fibers. The first factor alone may be sufficient in many cases, others may require the co-operation of another or of all.

Pflueger's Archiv (Bonn), August.

Physiology of the Suprarenals. H. STREHL.—The removal of one suprarenal from an animal does not cause disturbance, but ablation of both was inevitably fatal in the experiments on 114 animals described. All attempts to transplant a suprarenal met with failure. Severing or compressing the vein of

the remaining suprarenal, after removal of the other, always entailed the same result as the extirpation of the organ—that is, the blood pressure invariably fell. After cessation of the compression the blood pressure rose again. No substance could be discovered in any other organ that has this power of increasing the blood pressure.

Therapie der Gegenwart (Berlin), August.

Subarachnoid Antitoxin Treatment of Tetanus. E. v. LEYDEN.—It has been established that tetanus antitoxin will neutralize the tetanus toxin in the blood, but the persistence of the convulsions, after this has occurred, indicates that they are due to the localization of the toxin on the large motor ganglion cells of the anterior horns. An emulsion of these cells from a patient who had died in spite of the subcutaneous injection of antitoxin, induced experimental tetanus while tests with the blood were negative. Injecting the antitoxin directly into the brain has saved only 6 out of the 24 thus treated to date, according to the records. Kocher has obtained slightly better results by slowly instilling it after trephining, introducing the canula for 4 or 5 cm. Jacob and Sicard first tried subarachnoid injection, or dural infusion as they call it, after finding it very successful in tests on dogs, although it always failed on goats. This method has been tried eleven times on man. Six patients could not be saved, but the last five—although very severe cases—have all recovered, including a new case described by Leyden in this communication. The patient was a young hostler with temperature of 105.8 F. Duration of incubation not known, but symptoms of tetanus for three days. The temperature dropped to 101 F. in an hour after 10 c.c. of cerebrospinal fluid had been withdrawn and 5 c.c. of Behring's tetanus antitoxin infused in its place. The improvement was marked the next day, but the day after, the muscular rigidity becoming more pronounced, the infusion was repeated under the same conditions. By the end of the month the patient was completely restored except for persisting rigidity of the abdominal muscles which gradually subsided. The amount of antitoxin injected was equivalent to .5 gm. of the solid form. In Leyden's first case, two years ago, a young woman with tetanus of ten days' incubation, after a three months' abortion, recovered after dural infusion of the equivalent of 2.5 gm. of the solid antitoxin. The technique is the same as for lumbar puncture, but the patient must be kept under the influence of narcotics, and the food must be supervised as the patients are liable to choke. [Pfaundler has recently reported three cases of tetanus neonatorum treated in this way at Escherich's clinic, in which the beneficial influence of the dural infusion of antitoxin was unmistakable. McCaw has also published a recovery from tetanus neonatorum, with temperature of over 106 F., after subcutaneous injection of 5 c.c. of antitetanus serum from the Institut Pasteur. Pure cultures of the tetanus bacillus were derived from the navel secretions. Half the amount was injected again the third day, six days after the first symptoms had appeared.—ED.]

Test of the Permeability of the Nose. GLATZEL.—A small metal mirror is held against the lip just below the nose and the patient breathes on it. The moisture from the breath spreads out on it like a butterfly's wings and gives an accurate picture of the amount of breath passing through the nose. In case of unilateral obstruction, the disproportion is striking between the two sides of the picture. A few concentric arcs are engraved on the mirror for convenience. It is cut to fit close against the lip and to be used on the four sides.

Wiener Klin. Rundschau, August 25.

Treatment of Vertigo. R. SPIRA.—A concussion is liable to separate the terminal fibrils of the neurons innervating the labyrinth, and thus induce disturbances in hearing and in equilibrium. With repetition of the external excitation the vestibular nerve becomes deadened and less sensitive and the clinical disturbances in equilibrium become proportionately less and less pronounced. Spira therefore advocates as a treatment for vertigo, the systematic repetition of the external stimulation. This can be accomplished by daily gymnastic exercises, swinging the head up and down, to and fro and from side to side, and turning in circles around a chair or table, proceeding very gradually. This will cure the tendency to symptoms suggesting seasickness which many persons experience when they ride backward, swing or waltz. It has proved particularly efficacious in cases of vertigo consecutive to concussion of the labyrinth.

September 1.

Fixation Abscess in Puerperal Septicemia. JANSEN.—A febrile parametritis following a spontaneous birth resulted in two abscesses in the gluteal region on each side of the sacrum. Fever persisted after evacuation and the spleen and liver remained hypertrophied, although the parametritis was almost cured. The temperature was not affected by quinin. The pulse increased to 145 and the patient became delirious, with chills. Two grams of oil of turpentine were injected under the left deltoid muscle, producing a fixation abscess. As it developed, the symptoms vanished and the patient rapidly and completely recovered. The case is described more fully in the *Niederlandischen Med. Wochenschrift*.

Nasal Therapy of Neuroses. L. KUERT.—While holding a 9-year-old boy who was having convulsions in the course of severe whooping cough, Kuert tested the corneal reflex and noticed that the cramp in the larynx unmistakably moderated as the cornea was touched. The whoop diminished in intensity, and as the eyelid was pressed against the eyeball, it became less and less, and ceased entirely when the conjunctiva was gently rubbed with the finger. This discovery of the close connection between the throat organs and the terminals of the trigeminus nerve was confirmed by further tests. The spasm of the glottis was completely arrested by tickling the mucous membrane of the nose with a feather. Further tests and experiences with other patients completed the demonstration of the inhibiting influence on spasms of the glottis, larynx and neighboring muscles of mechanical irritation of the terminals of the trigeminus. He has utilized this discovery during the last ten years in the treatment of spasm of the larynx, pharynx, lids, yawning spells, facial spasms, spasmus nutans and even in the uncontrollable vomiting of pregnancy, with almost invariable success. In very few of these cases was the nasal membrane pathologically altered. Besides the simple measures above mentioned, rubbing the cornea with the finger, tickling or holding the nose, he has used a snuff of quinin and sugar, or a 1 or 3 per cent. mentholized salve. A more energetic measure is a snuff containing a little veratrum album and Venetian talc. He uses quinin or a very small amount of the first snuff in the case of infants. Two cases of spasmus nutans were thus cured, also a number of obstinate cases of blepharospasm in older children. He prefers for the latter a salve of 30 eg. of mercur. precip. flav. in 15 gm. of vaselin. A pledget of cotton impregnated with this salve is inserted in each nostril alternately. The result was like magic in several instances. In one case the little patient, a boy of 5, suffered also from enuresis nocturna which vanished with the blepharospasm. Two mild cases of facial spasm were cured with a mentholized salve, and several of tic convulsif with the snuff. Yawning spasms which had resisted months of other treatment, ceased completely after a few days of the snuff. Laryngeal spasms on a basis of hysteria promptly yielded to the snuff. A severe and obstinate case of vomiting in pregnancy was controlled by it. It even had a perceptible inhibitory influence in a few cases of epilepsy. One young man found himself able to abort a seizure by introducing a crab's-eye into his own conjunctival sac whenever he felt the approach of an aura. In this way he was able to abort all seizures for several months, after which the reflex seemed to lose its inhibiting power. This treatment had no effect in nervous cough or nervous asthma. In fact they could be induced by it, but never inhibited. A patient with chronically recurring hay fever took the snuff as a preventive measure a fortnight before the usual date of its appearance and passed through the summer without the usual symptoms.

Wiener Med. Wochenschrift, June 22 and 29.

Etiology and Signs of Enteroptosis. J. CSERL.—Many assert that nervous dyspepsia and enteroptosis are identical,

that is, the cause and the symptoms are the same in each. Stiller has called attention to the mobility of the tenth rib as a sign of a congenital tendency to enteroptosis. He calls it the stigma of enteroptotic neurasthenia as it not only accompanies every case of pronounced enteroptosis, but is an index of the extent of the morbid process. Cseri states that he has noticed that patients of this category always present pronounced lordosis. The pelvis projects, the lumbar region hollows inward and the buttocks project upward and backward more in a horizontal plane. This deprives the abdominal organs of the natural supports supplied by the normal, more vertical position of the lower portion of the trunk. He adds this tendency to lordosis to the other stigmata of enteroptotic neurasthenia—the loose tenth rib and the long thorax. [Zweig reports in the *Archiv. f. Verdauungs.* vii, 3, that the loose tenth rib is not exclusively limited to nervous dyspepsia, as he has observed it in a few patients who have never had any symptoms of this particular form of dyspepsia.—ED.]

Puerperal Gangrene of the Legs. E. MANDL.—In the twenty-two cases of puerperal gangrene which Mandl has collected, the gangrene made its appearance during pregnancy in four, and great compression of the pelvic veins during the course of the pregnancy was noticed in several others, especially his own personal case and Wormser's. In both of the latter the physician was sued for damages by the family, but the courts dismissed the suit. In his case, a healthy, vigorous primipara, after a spontaneous birth with complete laceration of the perineum, exhibited signs of phlebothrombosis with indications of gangrene, affecting both legs, on the seventh day. When the right leg was amputated all the vessels, both veins and arteries, were thrombosed from the foot to the lower third of the thigh, so that circulation was completely suspended. In the cases on record only 2 were bilateral. Heart disease was evident in 2 and suspected in 1. All recovered except 2, one of whom succumbed to pneumonia after amputation. Physicians should be on the lookout during pregnancy for conditions suggesting possible future gangrene.

Treatment of Tuberculosis by Mechanically Induced Hyperemia. A. SCHENK.—Persons with a tendency to tuberculosis usually have large lungs and a small heart. The heart is unable to keep the lungs adequately supplied with blood, and the apices, where the circulation is most deficient, are the points usually first affected by the bacillus. Schenk combats these conditions by mechanically inducing hyperemia throughout the lungs, most intense at the apices. He accomplishes this by having the patients recline on an inclined plane, the feet higher than the head, all day long, out of doors in dry weather. He supplements this position-treatment by a hollow, rubber jacket allowing circulation of hot water at 113 F., which is worn for several hours morning and evening. An attendant sponges off the feet, hands and abdomen every five minutes with cold water. At the slightest indication of cardiac insufficiency, he has an interposed coil of tubing in which cold water circulates, placed over the heart. The effect of these measures on the expectoration and other symptoms is surprisingly favorable, especially after sleeping with the head low all night.

Gazzetta Degli Ospedali (Milan), August 25.

The Mosquito Theory of Yellow Fever. G. SANARELLI.—Since Sanarelli returned to the chair of hygiene at Bologna he has continued his studies of the icteroid bacillus, and remarks now that it would be far better for the cause of science to have this bacillus studied in laboratories at home, rather than to send susceptible and inexperienced men to study the disease in its haunts to die like young Meyers. The icteroid bacillus has been isolated for four years according to the strictest rules of bacteriology; it is at the disposal of any who wish to test it; it reproduces in animals exactly the same symptoms and lesions as yellow fever in man—according to the testimony of every one who has seriously investigated it—and it thus responds to all the conditions and requisites which should characterize the specific agent of yellow fever. One experience on man or, better still, one auto-experience would be worth more than all the theories and discussions in the world. He cites history to show that contagion has occurred in Philadelphia, Baltimore and other places where yellow fever is unknown, from contagion by means of garments formerly worn by a yellow-fever subject, but which had been packed away in trunks for two, five and even seven years. He states that yellow fever has appeared at Cuzco, Caraccas and other South American points thousands of feet above the level of the sea, far above all mosquito-breeding swamps. It even crossed the Andes and infected mountainous regions in Peru, at altitudes of 13,500 feet in the epidemic of 1855-56. He devotes pages to citations of various instances of contagion in which the intermediation of mosquitoes seems impossible or superfluous. Most of them are taken from the reports at the Geneva Congress of 1882, or the publications of the French authority on tropical diseases, Berenger Feraud. He states that the mosquito bites which are assumed to have been the means of infecting Dr. Carroll, lose their significance when we read that he was all the time attending patients in the Las Animas hospital, "where yellow fever patients were admitted in large numbers." Also that he had been occupied three days before in the dissecting-room where Agramonte had dissected a yellow-fever cadaver a few days previously, and which was very dirty. It seems very natural that he should have contracted yellow fever under these circumstances. Sanarelli himself had a light attack of yellow fever during his first researches at Rio, although he spent his nights in a remote, healthy suburb. It did not require much effort of the imagination, he observes, to attribute the infection to hospital contagion. He also criticises the case of the young soldier who showed symptoms of yellow fever after having been bitten by mosquitoes known to have sucked the blood of yellow-fever patients. He points out that the fact is stated in the report that the young man had made a surreptitious visit to the seashore fourteen days previously without leave, and he might have afterwards stolen away for a brief trip to some infected point without the knowledge of his superiors. Sanarelli does not deny that the mosquito may be casually the bearer of infection, as flies and other insects may accidentally transmit any infectious disease. Lazear was bitten by a mosquito while he was visiting a yellow-fever patient and drawing blood from him. It was assumed that the mosquito must previously have sucked the patient's blood, as Lazear developed the fever and died in consequence. Sanarelli exclaims, "Was it worth while to make such a fuss and call the attention of the world to a theory which the most superficial investigation shows to have no serious foundation, but which leads its authors to proclaim absurd deductions, such as the uselessness of disinfection in the prophylaxis of a disease that from remotest times has always shown itself one of the most highly contagious in human pathology!"

New Patents.

682,050. Apparatus for separating solvent vapor from air. Walter Erben, Philadelphia.
681,882. Coagulant and making same. Ira H. Jewell, Chicago.
682,084. Electric temperature indicator. Frank L. Jobson, Richmond, Va.
682,089. Medicinal electrode. Orville L. Leach, Providence, R. I.
682,090. Surgical dressing packer. John E. Lee, Conshohocken, Pa.
682,103. Making substitutes for mother's milk. John Meyenberg, Kent, Wash.
681,806. Lung-protector. Armand Mignault, Salem, Mass.
682,110. Syringe. James Murray, New Haven, Conn.
681,975. Surgical instrument. John N. Ranger, Evansville, Ind.
681,741. Medicament device. Gustav Schirmer, Chicago.
681,758. Atomizer. Charles L. Turner, Malden, Mass.
682,123. Hay-fever disk. Wm. R. Wilson, Denver, Colo.
682,522. Sterilizer case. Wm. and J. Boekel, Philadelphia, Pa.
682,235. Hernial truss. Charles E. Brooks, Marshall, Mich.
682,171. Sterilizer. Richard W. Carrter, West Springfield, Mass.
682,455. Respiratory hood. George A. Cooper, Pittston, Pa.
682,181. Producing albumoses. Georg Eichelbaum, Berlin, Germany.
682,547. Diffusion apparatus. Ludwig Hirt, Grevenbroich, Germany.
682,549. Casein powder. John A. Just, Syracuse, N. Y.
682,269. Syringe attachment. James G. Poe, Dallas, Texas.
682,270. Abdominal supporter. Fanny Portugal-Hirschberg, Chicago.
682,344. Medicated fabric. Claude A. O. Rosell, New York City.
682,503. Abdominal supporter. Rachel Strasburger, Butte, Mont.

Queries and Minor Notes.

STATES NOT REQUIRING EXAMINATION.

ST. LOUIS, Sept. 18, 1901.

To the Editor:—Please let me know where a graduate in medicine could practice without passing the State Board examination.

M. S.

ANS.—The laws of the following states admit graduates to practice medicine without examination, under varying conditions: Arkansas, Colorado, Kentucky, Michigan, Nevada, Nebraska, Oklahoma, Rhode Island, South Dakota and Wyoming. In some of the states only diplomas from certain schools are recognized; thus in Michigan the diplomas of some forty or fifty schools only are accepted and in Rhode Island similar scrutiny is exercised. In nearly all, more or less discrimination is made in regard to certain schools, but in these states more particularly than others.

SCOPOLAMIN-MORPHIN ANESTHESIA.

CORSICANA, TEXAS, Sept. 14, 1901.

To the Editor:—In the issue of Aug. 17, 1901, on page 480, in article "Scopolamin-Morphin Anesthesia," the amount of scopolamin used is first given as .4 mg.: the second time as 4 mg. Kindly advise me which is correct, and is the article obtainable in English?

L. H. R.

ANS.—The former is correct. Instead of being .4 mg., it is given in the original 0004 of a gram. The total dosage advised by Korff in the article in his proposed anesthesia is 12 decimilligrams, or .0012 of a gram, in three doses of 4 decimilligrams each. The mistake is obvious and we think that no one will be misled by it. So far as we know there is no English translation of the article.

Books Received.

Acknowledgment of all books received will be made in this column, and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review as dictated by their merits, or in the interests of our readers.

A HANDBOOK OF PATHOLOGICAL ANATOMY AND HISTOLOGY, with an Introductory Section on Postmortem Examinations and the Methods of Preserving and Examining Diseased Tissues. By Francis Delafield, M.D., LL.D., Professor of the Practice of Medicine, College of Physicians and Surgeons, Columbia University, New York, and T. Mitchell Prudden, M.D., LL.D., Professor of Pathology and Director of the Department of Pathology, College of Physicians and Surgeons, Columbia University, New York. Sixth Edition with 13 Full-page Plates and 453 Illustrations in the Text in Black and Colors. Cloth. Pp. 819. Price, $5.00. New York: Wm. Wood & Co. 1901.

THE OFFICE TREATMENT OF RECTAL DISEASES Explained and Simplified. Being an Exposition of the Treatment of All Those Diseases, Both Medical and Surgical, of the Rectum, Anus and Sigmoid Flexure, the Cure of Which May be Accomplished Without Surgical Anesthesia. Illustrated. By Rufus D. Mason, M.D., Omaha, Neb., Professor of Rectal and Pelvic Surgery in the John A. Creighton Medical College. Cloth. Pp. 83. Price, $1.50. Omaha: F. B. Festner. 1901.

THE MICROSCOPE AND ITS REVELATIONS. By the late William B. Carpenter, C.B., M.D., LL.D., F.R.S. Eighth Edition, in which the first seven and the twenty-third chapters have been entirely rewritten, and the text throughout reconstructed, enlarged, and revised by the Rev. W. H. Dallinger, D. Sc., D.C.L., LL.D., F.R.S., etc. With 22 Plates and nearly Nine Hundred Wood Engravings. Cloth. Pp. 1181. Price, $8.00. Philadelphia: P. Blakiston's Son & Co. 1901.

THE HEALTH RESORTS OF EUROPE. A Medical Guide to the Mineral Springs, Climatic, Mountain and Seaside Health Resorts; Milk, Whey, Grape, Earth, Mud, Sand and Air Cures of Europe. By Thomas Linn, M.D., Doctor of Medicine, Faculty of Paris. Cloth. Pp. 281. Price, 2 s. 6 d. net. London: Henry Kimpton, Hirschfeld Bros. 1901.

SCHOOLBOY'S SPECIAL IMMORALITY: Addressed Especially to Those Who Have the Charge of Boys. By Maurice C. Hime, M.A., LL.D., Sometime Head-Master of Foyle College, Derry. Third Edition, Revised and Enlarged. Cloth. Pp. 115. Price, $0.35. Philadelphia: P. Blakiston's Son & Co. 1901.

PHOTOGRAPHIC ATLAS OF THE DISEASES OF THE SKIN. By George Henry Fox, A.M., M.D., Clinical Professor of Diseases of the Skin, College of Physicians and Surgeons, N. Y. Part 1. Paper. Philadelphia and London: J. B. Lippincott Co. 1901.

TWENTY-SEVENTH ANNUAL REPORT OF THE SECRETARY OF THE STATE BOARD OF HEALTH OF THE STATE OF MICHIGAN for the Fiscal year ending June 30, 1899. Cloth. Pp. 241. Lansing, Mich.: Robert Smith Printing Co. 1900.

TRANSACTIONS OF THE INDIANA STATE MEDICAL SOCIETY, 1901. Fifty-second Annual Session, held in South Bend, Ind., May 15, 16 and 17, 1901. Cloth. Pp. 646. Logansport, Ind.: Wilson, Humphreys & Co. 1901.

BIENNIAL REPORT OF THE BOARD OF HEALTH OF THE STATE OF WEST VIRGINIA, and Report of Vital and Mortuary Statistics for the Years 1898-99. Paper. Pp. 183. Charleston, W. Va.: The Tribune Co. 1901.

TRANSACTIONS OF THE SIXTY-EIGHTH ANNUAL SESSION OF THE MEDICAL SOCIETY OF THE STATE OF TENNESSEE, NASHVILLE, 1901. Cloth. Pp. 416. Nashville: Marshall & Brace Co. 1901.

TRANSACTIONS OF THE VERMONT STATE MEDICAL SOCIETY, 1900. Published by the Society. D. C. Hawley, M.D., Secretary. Cloth. Pp. 195. Burlington: Free Press Association. 1901.

PROCEEDINGS OF THE NEW YORK PATHOLOGICAL SOCIETY FOR THE YEARS 1899 and 1900. Cloth. Pp. 347. Printed for the Society. 1901.

The Public Service.

Navy Changes.

Changes in the Medical Corps of the U. S. Navy, week ending Sept. 14, 1901:

Medical Inspector H. Wells, ordered to the Boston Navy Yard, September 14.

Medical Inspector W. E. Taylor, retired, ordered to the Honolulu Naval Station.

Medical Inspector R. C. Persons, ordered to duty at the marine recruiting rendezvous, New York City, September 9, and to other special duty.

Surgeon M. H. Crawford, detached from duty at the marine recruiting rendezvous, New York City, September 9, and ordered to duty in connection with fitting out the *Illinois*, and to duty on that vessel when put in commission.

P. A. Surgeon D. N. Carpenter, detached from the naval hospital, Norfolk, Va., and ordered to duty in connection with fitting out the *Illinois*, and to duty on that vessel when put into commission.

P. A. Surgeon G. D. Costigan, resignation accepted, to taken effect September 16.

Pharmacist J. Cowan, detached from the naval hospital, Mare Island, Cal., ordered home and granted sick leave for one month.

P. A. Surgeon C. E. Riggs, detached from the New York Navy Yard and ordered to the Port Royal Naval Station.

Asst.-Surgeon J. C. Thompson, detached from the Port Royal Naval Station and ordered to the *Columbia*.

Asst.-Surgeon R. M. Young detached from the naval hospital, New York, September 14, and ordered to the New York Navy Yard, same day.

Asst.-Surgeon A. G. Grunwell, detached from the *Brooklyn* and ordered home.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, U. S. Marine-Hospital Service, during the week ended Sept. 14, 1901:

SMALLPOX—UNITED STATES.

California: San Francisco, Aug. 25-Sept. 1, 2 cases.
Massachusetts: Aug. 31-Sept. 7, Boston, 13 cases; Medford, 1 case.
Minnesota: Minneapolis, Aug. 31-Sept. 7, 2 cases.
New Jersey: Newark, Aug. 31-Sept. 7, 9 cases, 2 deaths.
New York: New York, Aug. 31-Sept. 7, 6 cases, 4 deaths.
Pennsylvania: Philadelphia, Aug. 31-Sept. 7, 12 cases, 4 deaths.
Utah: Salt Lake City, Aug. 24-Sept. 7, 5 cases.
Wisconsin: Green Bay, Sept. 1-8, 1 case; Milwaukee, Aug. 31-Sept. 7, 1 case.

SMALLPOX—FOREIGN.

Belgium: Antwerp, Aug. 17-24, 1 case.
Brazil: Pernambuco, July 17-31, 44 deaths.
British Columbia: Vancouver, Aug. 1-31, 1 suspect.
Colombia: Panama, Aug. 26-Sept. 2, 12 cases.
Ecuador: Guayaquil: June 22-Aug. 7, 1 death.
France: Paris, Aug. 17-24, 9 deaths.
Great Britain: Leeds, Aug. 24-31, 1 case; London, Aug. 17-24, 41 cases.
India: Calcutta, Aug. 3-10, 2 deaths; Madras, Aug. 3-9, 7 deaths.
Italy: Messina, Aug. 16-24, 8 cases; Naples, Aug. 17-24, 115 cases, 22 deaths; Palermo, Aug. 19-24, 1 death.
Russia: Moscow, Aug. 10-17, 2 cases; St. Petersburg, Aug. 4-11, 12 cases.
Uruguay: Montevideo, July 18-25, 10 cases.

YELLOW FEVER.

Costa Rica: Liberia, Aug. 25, prevalent; Port Limon, Aug. 18-24, 8 cases, 1 death.
Cuba: Havana, Aug. 24-31, 7 cases, 2 deaths; Inoculation Station, Aug. 24-31, 1 case.
Mexico: Merida, Aug. 16-24, 2 deaths; Vera Cruz, Aug. 24-31, 3 cases, 2 deaths.

CHOLERA.

India: Bombay, Aug. 6-13, 9 deaths; Calcutta, Aug. 3-10, 6 deaths; Madras, Aug. 3-9, 45 deaths.
Japan: Island of Shikohu, Aug. 6, 3 cases; Yokohama, Aug. 3-10, 1 case.

PLAGUE—INSULAR.

Philippines: Camp Stotzenberg, July 13-20, 2 cases; Manila, July 13-Aug. 3, 26 cases, 21 deaths.

PLAGUE—FOREIGN.

India: Bombay, Aug. 6-13, 197 deaths; Calcutta, Aug. 3-10, 17 deaths; Karachi, July 24-Aug. 1, 17 cases, 13 deaths.
Japan: Formosa, Aug. 6, epidemic.
Straits Settlements: Singapore, July 20-27, 1 death.
China: Hongkong, July 27-Aug. 3, 13 cases, 11 deaths.

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